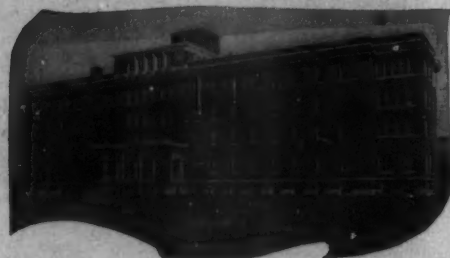


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BOOK DEPARTMENT

COLONIAL LIGHTING. By Arthur H. Hayward. 159 pp., 6 x 9 ins. Price \$7.50. B. J. Brimmer Company, Boston.

THERE are many books written for the guidance of collectors of antiques of various kinds which have but moderate interest for architects and interior decorators, but occasionally there appears a volume which extends its appeal not only to the antiquarians, for whom it is primarily intended, but also to architects and decorators who are interested in the arrangement of present-day homes and who value historical accuracy in supplying the manifold accessories and small details which mean so much in carrying out a domestic interior.

Such a work is the volume under consideration, for it is a study of lighting fixtures as they have existed in America from the days of the coming of the first white settlers to the shores of Massachusetts Bay. It will be seen, therefore, that entirely apart from its historical and antiquarian interest the volume possesses a value for architects. Few details of an interior are more important than lighting fixtures in establishing its character; this is partly because the positions which such fixtures generally occupy make them conspicuous during the day, and partly because at night, being the sources of illumination, they logically draw attention to themselves. For these reasons, among others, architects are careful to design their fixtures with close adherence to what historical research has found was used at different times, and the utmost skill is being lavished by certain manufacturers on their work in order that it may be beyond criticism as to historical correctness and mechanical execution.

Scarcely anything could be more primitive than the "Betty" lamps which were brought by the New England pioneers on the "Mayflower" and other early ships, and which with their rank-smelling fish oil supplied what little light was had aside from that from blazing logs in huge fireplaces. Such small lamps differed little if at all from those used by the Greeks and Romans and were precisely the same in principle, the oil being held in a small vessel, generally arranged to hang, with the wick held in a nose or spout at one end. Another early type of lighting fixture was the lantern, sometimes entirely of metal, with perforations cut in different decorative patterns, but often having shades made of glass or of thinly shaved horn, and sometimes burning oil, on

the principle of the "Betty" lamps, but often arranged for candles. These lanterns possess a considerable interest for architects interested in interiors of the early Colonial type, and since they seem to have been made in large numbers it is not difficult even now to obtain them in many interesting if rather simple forms.

But the earliest lighting device which is of really wide interest to architects is the candle. The making of candles for domestic use was in early days a part of every housekeeper's duties, just as baking or weaving. The first cattle imported from England were three cows in 1630, but cattle were not numerous for 20 or 30 years, and since tallow of the kind generally used could not be

had, candles were perforce made from the fat of deer and bear, substitutes being the wax from the honeycomb of wild bees found in the crevices of rocks and the trunks of dead trees, and the bayberry, growing on low bushes along the edges of the marshes, as well as the spermaceti obtained from the sperm whale. A common substitute for candles was made of the pith of the common weed known as the cat-o'-nine-tail, dipped in tallow or some other fat.

It is of course in the later developments of American lighting fixtures that the interest of architects and decorators will be centered. The increasing wealth and growing refinement in the American colonies and the early states demanded fixtures suit-



Crystal Chandelier with Cut Drops
Illustration from "Colonial Lighting"

able for the beautiful and highly architectural homes which were being built, and the ideas current in both England and France were drawn upon when fixtures were not actually imported from London and Paris. Particularly during the Georgian era in England designers were accustomed to handling their lighting fittings with consummate skill; candelabra and wall sconces were designed with taste which was almost unerring, and the utmost discrimination was displayed in the arrangement of minute details such as the use of the crystal pendants and drops which formed so important a part of their adornment. All the motifs adopted from abroad were, for use in America, followed in a much simplified form, in lighting fixtures as well as in interior architecture and in furniture.

Apart from the practical interest which this volume possesses for architects and interior decorators, it might well prove a source of inspiration for the manufacturers

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A group of books dealing with Spanish and Italian architecture that are of direct value to designers

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THE MINOR ECCLESIASTICAL, DOMESTIC AND GARDEN ARCHITECTURE OF SOUTHERN SPAIN. By Austin Whittlesey.

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This work in four volumes illustrates the decorative arts of Spain during the Gothic, Moorish, renaissance and baroque periods. Each volume, 11×14 inches, contains 84 full page plates printed in heliotype and in colors and provides a valuable source of inspiration to architects. The subjects include interiors, furniture, woodwork, ironwork, sculpture and ceramics.

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ITALIAN RENAISSANCE

MORE SMALL ITALIAN VILLAS AND FARM HOUSES. By Guy Lowell.

This book, containing more Italian villas and farm houses, is composed of a second collection of valuable photographs made by Guy Lowell. It is an important contribution to the study of Italian domestic work which is so full of suggestion to the designer of country houses today. The book was made possible through the opportunities that Mr. Lowell enjoyed in his association with the Red Cross during the war to visit portions of Italy and see buildings usually not available to the student and traveler.

Bound in buckram, 140 plates, size 12×16 inches

PRICE, \$25

MONOGRAPH OF THE MASSIMI PALACE

This book was first published in Paris in 1818 and original copies are rare and expensive. This reprint, which has been most carefully prepared, gives architects a comprehensive presentation of the detail of this superb example of Peruzzi's art. The illustrations comprise carefully measured, exquisite drawings of the plans, facades, sections, ceilings, mouldings, woodwork, etc. The little Palace Massimi, better known as Palazzo Pirro, is equally well shown in the same volume.

Portfolio, 13×17 inches, 40 plates

PRICE, \$10

INTERIORS, FIREPLACES AND FURNITURE OF THE ITALIAN RENAISSANCE. By Harold D. Eberlein.

One hundred and seventy examples (selected chiefly from the sixteenth century) of interiors, fireplaces, furniture, candelabra, etc., make this book one of unusual reference value to architects and interior decorators. Many of the illustrations are from photographs of originals now in the important museums of Europe.

One volume, $9\frac{1}{2} \times 12\frac{1}{2}$ inches. Bound in buckram

PRICE, \$13.50

ORNAMENTAL DETAILS OF THE ITALIAN RENAISSANCE. By Arthur L. Blakeslee.

This book has been compiled with the object of providing a moderate priced volume, of convenient size, presenting in compact form a series of drawings illustrating the architectural detail of the best period of the Italian renaissance, and it is believed that it will meet a long felt want.

One volume, $9\frac{1}{2} \times 12\frac{1}{2}$ inches. Bound in buckram

PRICE, \$12.50

THE architect of to-day requires a good working library; modern architectural practice demands proficiency in a wide variety of styles and mediums, and a good collection of books, showing selected odd and modern work, is often the means of a valuable inspiration. Any of the books listed will be sent, carriage prepaid, anywhere in the United States, upon receipt of price.

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of lighting fittings. Today, more than at any time during the past 100 years, popular taste is following the fashions in furnishing and decoration which were in vogue during the latter part of the Colonial period and the early decades of the Federal era, and lighting fixtures upon the exact design of those then used would undoubtedly be widely popular now, and electricity—that most adaptable of present-day forces—may be relied upon to provide illumination without material sacrifice of interest or charm.

IN THE ORGAN LOFTS OF PARIS. By Frederic B. Stiven, Professor of Music, University of Illinois.

SO indissolubly are the old churches of Paris part of the life of the city that they fulfill rather more than the ecclesiastical functions generally expected of churches; they constitute a great part of the architectural heritage of France. Few parts of old Parisian churches are more interesting than their organ lofts, built not as parts of the choirs but at the west ends of the churches, and accommodating what the French call the "grand organs" played by the master organists; the choir organs are much smaller, and each is played by a "chapel master." Many of these great organs have been played by the bearers of great names—that of Guilmant, organist at La Trinite, comes quickly to the mind, while Saint Saëns played at the Madeleine, Widor at Saint Sulpice and Cesar Franck at Sainte Clotilde. The author introduces many passages which possess an architectural value, particularly the pages which describe the interior of Notre Dame as seen from its organ gallery, or long drawn naves as seen from above.

THE ENJOYMENT AND USE OF COLOR. By Walter Sargent. 274 pp., 5½ x 8 ins. Price \$2.50. Charles Scribner's Sons, New York.

IN this volume the writer, Professor of Art Education in the School of Education, University of Chicago, presents a part of the results of his experience as an instructor and also as a landscape painter. While arranged primarily as a textbook on the use of color for art departments of secondary schools and colleges, it is adapted for general reading. It points out a definite and practical method of approach to the study and appreciation of color helpful to that large number of people who do not expect to become artists but who none the less would like to know more about color and its use in order to heighten their own enjoyment of color in nature and art. Color constitutes an important influence in one's surroundings, and enjoyment of color develops rapidly with a little training, even with those who are to some degree or other color blind. The subject is not one of baffling technicality, and many people have found that their intelligent study of color has resulted in their having a materially different view of the world about them.

Professor Sargent divides his subject matter into seven sections: Color Sensations; Color Values and Intensities; Complementary Colors; Composite Colors; Near-Complements and Triads; Color Harmonies; and Color in Nature and Art, and considers under each of these headings the development of an intelligent understanding of the matter. The book, as already suggested, has a value far greater than its appeal to art students, and is well worthy of a very wide general circulation.

COLONIAL INTERIORS. By Leigh French, Jr. 125 Plates, 9½ x 13 ins. Bound in Cloth. Price \$15. William Helburn, Inc., New York.

GROWTH of interest in the architecture, decoration and furnishing of the American Colonial and post-Colonial periods is bringing wide dissemination of information and data regarding them. The parts of the country which were settled during these early periods have been carefully searched for such buildings as have not yet been photographed or written of, and present-day architects and decorators have now become so in accord with the "feeling" of the styles that work fully as good as was produced during the early periods is being designed in a number of offices. All this is, of course, the result of education, and the education has been the result to a great extent of the publication of many excellent works on the subject which by their illustrations have trained taste toward appreciating the work of the period and by their measured drawings have made it possible to create it anew. Just such a work is the present valuable volume. Excellent half-tones illustrate American work, early and later,—the seventeenth century type with interiors sheathed with pine and with cavernous fireplaces and sometimes "Dutch ovens," as well as the later type with more or less gracefully paneled walls, white paint, walnut or mahogany furnishings and everything else which goes with them, small things, but of considerable importance.

What will perhaps be of the greatest practical value to architects is the inclusion of a large number of working drawings drawn to scale. In work of a type such as this, in which a subtle and illusive character is often secured by means of details which are apparently trivial, such as the profile of a moulding of the proportion of an opening, it is necessary to have carefully made working drawings to supplement an illustration which may arouse a desire to create a paneled room, for example, without giving the designer the help he requires in planning it. These necessary details include, besides wall paneling and wainscoting, door and window trim; mantels, over-mantels and fireplace surrounds; china closets; stairways, balusters, newels, strings and stair ends; details of beading and chamfering, and there are a number of patterns for stenciling upon floors, the colors used in the original work being given for the designer.

P's AND Q's—A Book on the Art of Letter Arrangement. By Sallie B. Tannahill. 180 pp., 8 x 10 ins. Price \$4. Doubleday, Page & Co., Garden City, N. Y.

THE importance of lettering in work of many widely different kinds causes the publication of many books dealing with the designing and arrangement of letters. The present work has not been prepared so much with reference to lettering in its application to architectural drawing as in connection with some other forms of work, such as posters and the kinds of design much used in commercial art and in decorative designing of many sorts.

The author is an instructor in the fine arts at Teachers' College, Columbia University, and the work bears the marks of considerable experience and a firm grasp upon the application of design to various practical purposes. The volume should be useful indeed to workers in many forms of effort where skill in lettering is required, since lettering is a matter of importance.

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM

REMBRANDT'S PAINTINGS. By D. S. Meldrum. 204 pp., 453 plates, 451 illustrations. 7 x 10 ins. Price \$25. E. P. Dutton & Co., New York.

ONE result of the recent controversy as to the authenticity of certain paintings in public or private collections which have been attributed to Rembrandt has been the appearance, as part of the aftermath, of a number of volumes dealing with Rembrandt, his times and his work, volumes usually analytical and scholarly.

It may reasonably be doubted whether it is possible after several centuries to prove beyond any questioning the absolute authenticity of much of the work of any great artist. In his atelier there were without doubt many students who closely "understudied" the master and who possessed marvelous ability in imitating his mannerisms. These selfsame students, moreover, often painted unimportant parts of pictures, such as backgrounds, draperies or accessories, of which the more important portions were executed by the master himself. Added to the uncertainties presented by this dual responsibility for a painting (which generally bore the master's signature!) there are the wiles, past all understanding, by which the makers of bogus antiques produce wares sufficiently beautiful and plausible to deceive even the greatest of experts. It is sometimes thought that the long possession of a work of art under one ownership and the possibility of tracing its ownership through centuries constitute in themselves certain guarantees of authenticity, but the same skill which makes possible the production of a painting which will deceive even the elect is quite equal to the substitution of the copy for the original, the change not being detected for years—if ever. But possibly the most confusing ele-

ment in the situation is the wide difference of opinion among connoisseurs themselves—the consulting physicians disagree, adding to the perplexity of the public. One may readily recall the controversy which waged some years ago in New York over the provenance of a statue of marvelous beauty thought to belong to the antique period. Art experts, the most eminent and renowned, conveyed their opinions to an interested public by means of an eager and expectant press, but the statue was finally proved conclusively to be of quite recent make—notwithstanding the weighty testimony as to its antiquity. Well may the skeptical become cynical.

In the present volume there is given a review of the work of one of the supreme master painters of all time, and 541 half-tones illustrate work attributed to him in museums and private collections all over the world. The volume is well calculated to add to the fund of knowledge possessed by a student of painting and to further what might seem to be after all the most satisfactory basis for forming judgment,—the gathering of all the information possible upon a subject, the studying of such examples of a master's work as are of unquestioned authenticity, and the forming of an opinion based on these grounds. This is being done in other fields of art, and why not in painting? Even the experts themselves have no other way of learning, for there exists no royal road which leads to infallible judgment on matters connected with art. All this Mr. Meldrum's work undoubtedly aids in accomplishing, and in addition to a complete study of Rembrandt's work and an extremely helpful index the volume contains a list of paintings attributed to Rembrandt, the probable dates of their being painted, and the names of their present owners.

Cottages, Farmhouses and Other Minor Buildings

In England of the 16th, 17th and 18th Centuries

By LOUIS CONRAD ROSENBERG

OF ALL the architectural types, that most appropriate for American domestic use is often thought to be that of the old English cottage or farmhouse. It can be easily developed in materials of almost every kind; it possesses wide flexibility as to scale, and the character of its fenestration provides the ample wall spaces which many designers highly value for their architectural effect. Its interior is readily developed to provide the rambling type of plan which is popular for country or suburban domestic buildings, and all in all, the English farmhouse or cottage answers every demand made by the modern home builder in the search for a practical type.



THIS important work presents half-tone illustrations from photographs or sketches of more than 100 English country houses of the cottage or farmhouse types, chiefly in the Cotswolds and in Sussex, Suffolk and Kent. It deals with the work of three centuries and illustrates buildings of several widely different kinds of old English domestic architecture, built of wood, plaster, stone, brick, or combinations of all these.

There are also given countless detailed working drawings of doorways; oriel windows; gables; chimneys, singly or grouped in stacks; decorated plaster; half-timber work; fireplaces and cornices. A book invaluable to the architect.

102 pages, 10 x 13 1/2 inches.

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THE EDITOR'S FORUM

THE widespread interest which is being felt in the old processes of hand craftsmanship is logically a part of the interest which has resulted in renewed activity in many of the liberal arts themselves. In few departments of craftsmanship has there been manifested more interest than in the various forms of graphic art, comprising etching, lithography and wood block printing. Along with this interest there has gone an increasing success with which artists handle the various mediums, and etchings, lithographs and wood cuts are being produced in sizes that make them important and valuable as accessories to decoration.

It is interesting, therefore, to note the success with which Mr. Hall Thorpe has produced a wood cut measuring no less than 25 inches in width and 30 inches in height, but to have attained such success on the technical side without having lost sight of the artistic purpose is, in a sense, even more to be commended. This has been done in the recently issued plate, "A Country Bunch," in which are united the decorative qualities of many smaller wood cuts with a scale of presentation which has been but rarely if ever attempted.

The subject of the plate is comparatively simple—a blue bowl with many reflections and containing a rich riot of old fashioned flowers from a country garden, the whole against a black ground. The plate is strikingly successful as a study, but possibly even more interesting to many would be the overcoming of the technical difficulties which attended its making. "The cutting of the wood blocks," Mr. Thorpe writes us, "and the printing of them occupied fully a year, and while the cutting of them was by far the heaviest part of the work, the printing was certainly the most anxious. Twenty blocks in all were required, and about 80 printings. Four of the blocks were the full size of the print and were very awkward to handle. The large ones were all cut of maple, in Japanese fashion

with the knife, while the smaller blocks were engraved on boxwood. The printing, which was done on a cylinder machine, gave me delightful opportunities for experiment in over-printing and all the rest of the accidental effects dear to the artist. I found that only by over-printing two or three times could I get the quality and fullness of color I required. The large blocks gave the most trouble with warping and shrinking. When the background block came to be printed the second time my printer

found that it had shrunk $\frac{1}{8}$ -inch all around, which made it quite useless. Luckily for me the background was black, and the composition of the picture was such as to give me a way out. This was to cut the block down the center and print it with the halves $\frac{1}{8}$ -inch apart. The result was perfect, and thanks to the under-printing no sign of the accident is visible. No end of time was spent searching for permanent inks bright enough to give me satisfaction."

The plate constitutes a striking and tasteful piece of decoration; considered particularly, its draftsmanship is characterized by knowledge and ability, and its coloration by a series of

subtly adjusted harmonies to which additional variety is lent by the numerous printings which the print has undergone. Proofs of the plate have been purchased by the Victoria and Albert Museum.

A. S. T. M. TENTATIVE STANDARDS

DURING October there was issued the 1923 edition of the work which records the tentative standards adopted by the American Society for Testing Materials. The term "tentative standard" is of course used to apply to a proposed or suggested standard which is tentatively maintained for one or more years with a view to eliciting criticism, of which the committee concerned will take due cognizance before recommending final action toward the formal, permanent adoption of such a standard.



"A Country Bunch"

Woodcut of extraordinary size recently issued by Hall Thorpe



This Started It

The Bush Terminal Sales Building in New York City has again come to the front to serve the merchants of the United States.

They have set aside several floors of the building for show-room purposes, either permanent or transient.

And following their usual practice of thoroughness in rendering service, they have not been satisfied until they have found a method to meet the FLEXIBLE requirements of their tenants.



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"Incidentally, we want to take this opportunity to express our appreciation for the excellent service you gave us on the 5th floor.

"As you are aware, we have about 12,000 feet of Telesco Partition now in the building. The construction and finish are all that can be desired; the partition being flexible so that our carpenters can move it quickly with practically no waste."

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Bush Terminal Sales Bldg.

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TELESCO Partition, the movable wood and glass partition, has solved the difficulty of the flexible requirements of the Bush Terminal Sales Building.

Already they have over 12,000 lineal feet of it, more than in any other building in New York, in use for the subdivision of the numerous small offices.

In the illustration you can see how it meets the requirements of different ceiling heights. Normally seven feet high, it can be extended to thirteen feet or more.

Besides this, it is erected entirely with screws and can be taken apart and moved without damaging the wood. Read opposite what Mr. Howard, Superintendent of the Building, has to say of Telesco Partition.

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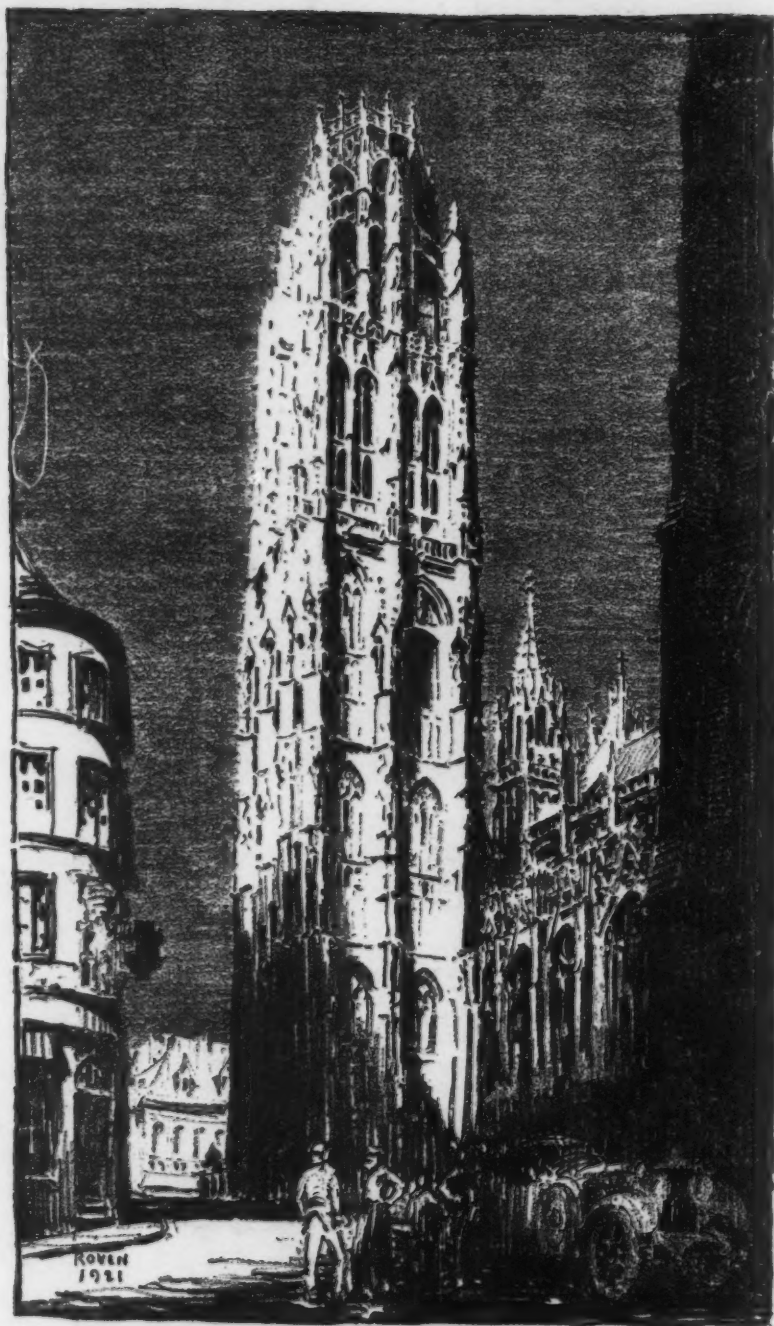


This is a Telesco Partition post cut away to show how extension member houses inside.

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TOWER, ROUEN CATHEDRAL
FROM LITHOGRAPH BY J. R. ROWE

The Architectural Forum

The ARCHITECTURAL FORUM

Volume XL

FEBRUARY, 1924

Number 2

↓ The Greek Revival

I. THE AMERICAN NATIONAL EXPRESSION

By HOWARD MAJOR

PREVALENT opinion decrees that Colonial architecture is America's individual contribution to the arts. This is, however, far from the truth; the much ridiculed Greek temple home of the first part of the nineteenth century is our independent gift to universal architectural development.

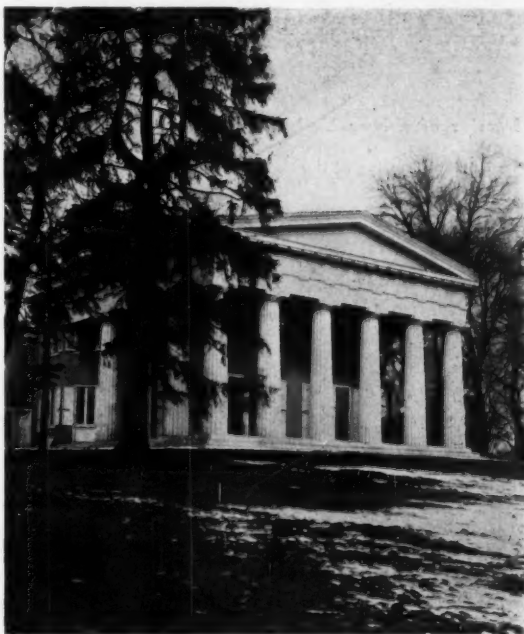
Counterparts of Colonial architecture are found throughout England, and the inquisitive may readily verify this statement by a comparison of smaller English domestic work of the eighteenth century with contemporaneous American work. This similarity was first called to our attention in "The Georgian Period" (1901). It is now universally conceded by authorities in both countries, as by S. C. Ramsey in "Small Houses of the Georgian Period" (London, 1919) and Fiske Kimball in "Domestic Architecture of the American Colonies" (New York, 1922), among recent works.

Having been born and bred with this idea of Colonial architecture's being our national style, we may well consider the statement to the contrary as startling. The great mass of Colonial data gathered and published verifies our first belief, particularly as until recently practically no data of similar nature was gathered in England. True, much eighteenth century architectural data has been published in England, but it has invariably related to the large and elaborate buildings. Nothing on such a grand scale was attempted here

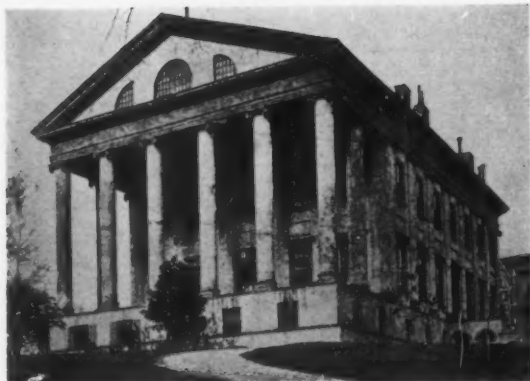
as in our mother country. Therefore the only comparison possible until recently has been these great English manor houses with our modest domiciles. Naturally enough we jumped to the conclusion of dissimilarity. Within the last few years there has come to light much English resemblance that is indeed startling. One might wonder, with the two countries in those days so widely separated, how such a similarity could exist. However, the reason is simple enough. In outlying districts in England and throughout America the designing of the home was entrusted to either a gentleman amateur or a builder. Both designed with the aid of English handbooks on architecture, of which a great number were published and sold at reasonable prices. These books quickly found their way to America,

and every carpenter provided himself with several of the latest editions. The popularity of these books may be judged by the great number of editions published, sometimes running to as many as 10 or 12. Therefore, whether in England, Virginia or New York, amateurs copying the same motif would naturally produce strikingly similar results.

This is not true of the Greek revival temple home. It is America's individual expression,—our own great national style in architecture. There are no counterparts of the temple used for dwelling purposes in Europe. Much has been written derogatory to

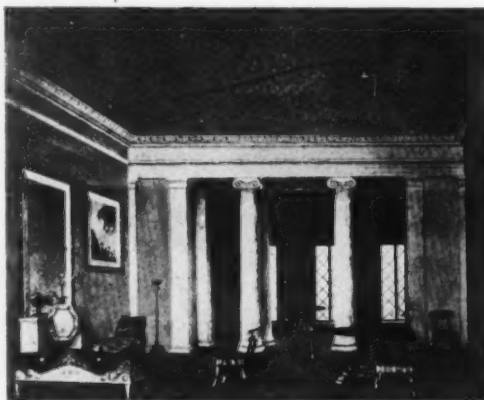


Nicholas Biddle House, Andalusia, Pennsylvania
The first example of the colonnade encircling the building

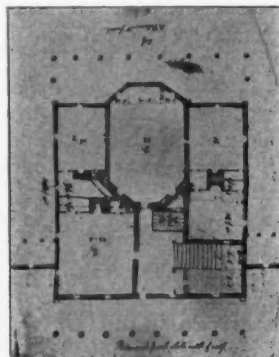


Virginia Capitol Building, Richmond, Virginia, 1789
The first actual instance of the temple form used for other than purposes of worship

this style, but much can and undoubtedly will be written in its praise. In America it is unsurpassed for its restraint and stateliness. Charm, the most elusive factor in architecture, has been attained, particularly in the type of temple with two low subordinated wings at right angles to the main axis. Such is the Mackay house, Willseyville, N. Y. Fiske Kimball thus pays his tribute, ably summing up this Greek revival period: "American domestic architecture made its independent contribution to universal development. Whatever may be thought, there can be no doubt that it endowed America with an architectural tradition unsurpassed in the qualities, monumentality and dignity." Such was the style.



Interior of a New York House of the Greek Revival Period
From original drawing of the New York Historical Society



Sketch Plan for Remodeling the Governor's House at Williamsburg, Virginia, 1779, by Thomas Jefferson

This is the first suggestion of a pediment roofing the entire building, thus forming a temple



Professor's House, University of Virginia, 1818
The first example of the temple used for domestic purposes

Growth of the Style

After the revolution America naturally turned more to the continent for inspiration than theretofore. The nation, now a republic, regarded with favor the ancient democracies of Rome and Greece and not the monarchies of western Europe. At this time abroad much research was devoted to the classic models of antiquity, and America eagerly assimilated the results to a greater extent than the older nations of Europe. With the monarchy overthrown in France, a stronger tendency than in England now prevailed for restrained classic design, and at this time "Vive la France" was indeed strong in America. The stage was set for our classic revival.

It is true that the classic revival had its beginning abroad, with its ultimate ideal the temple, but its realization was in America. Here was developed its great scope from the largest public buildings to the humble domicile, with an independent initiative seen nowhere in Europe. Its first expression is seen in the Virginia Capitol (1789) which preceded

the Madeleine in Paris, the first great European temple reproduction, by 22 years. In 1819-1826 the Bank of the United States was built in Philadelphia, antedating the corresponding foreign interpretation of the Parthenon, the National Monument at Edinburgh, by 10 years. For the first time America was in advance of Europe in architectural thought, and consequently in practice.

Books again were the direct factor, but of character widely different from before. The eighteenth century publications contained plates of houses, windows, doors, etc. which were actually reproduced; the later publications were restorations of classical antiquity which the designer adapted to his problems. Eventually, publications of the adapted solutions were published by Americans, but I am not familiar with any English publication of this character. By 1770 copies of the first volumes



Dwelling at Ann Arbor, Michigan

Although the style was not flexible, the designers had no difficulty in adapting it to the humblest dwelling as well as to the magnificent mansion. Note, to save expense, the use of the ante in lieu of the more expensive columns

of Stuart & Revett's work "Antiquities of Athens," Thomas Major's "Ruins of Pæstum," and John Wood's "Palmyra and Baalbec" arrived in America, to be followed by other publications of similar character, and within a few years after the revolution these new forces were felt everywhere in various ways.

Thomas Jefferson in the Eighteenth Century

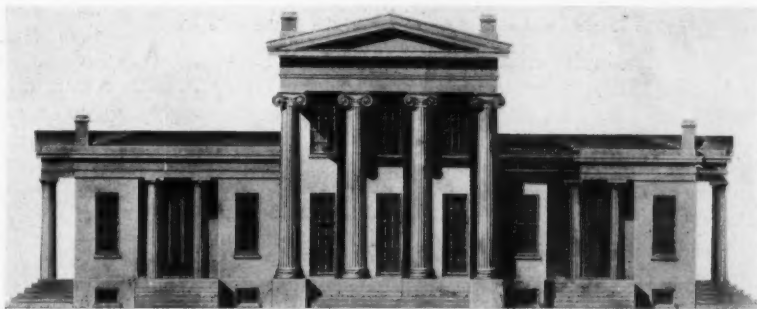
Just as Inigo Jones was the father of the Renaissance in England, so was Thomas Jefferson the father of the classic revival in America. Furthermore, Inigo Jones was the first great English architect, and so Thomas Jefferson, although a great statesman and diplomat, was the first great American architect. History further repeats itself for, as after Jones, individuals became determining factors in the characteristics of English architecture, so after the initiative of Jefferson, individuals played similar roles here.

Under Jefferson's leadership the South was first to feel the direct classicism of the revivalist in the temple form of architecture. The first forms derived from Roman antiquity were to be superseded by Greek forms, which were to prevail everywhere. So universally was Greek detail adopted after its introduction during the last year of the eighteenth century that although properly a classic revival, the period was to be known as the Greek revival.

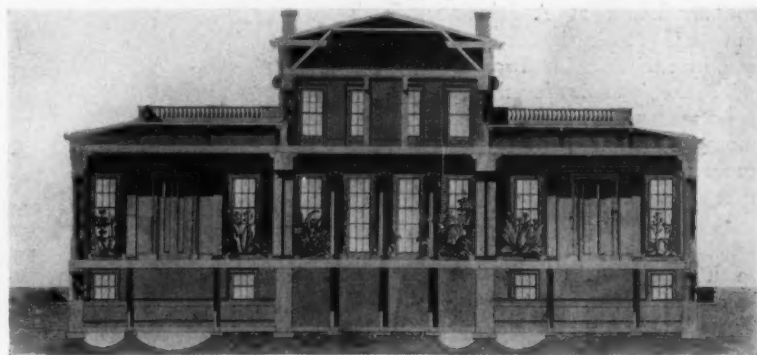
Jefferson, then Governor of Virginia, in about 1779 made sketches for the remodeling of the Governor's house at Williamsburg. In this he planned rows of eight columns at front and rear, with a pediment roof running from colonnade to colonnade, thus developing an amphiprostyle octastyle temple dwelling. This is the first instance of a temple form of architecture being adapted to domestic use. Nobody in Europe had conceived so radical a departure as this temple form. Applied to merely domestic purposes, Jefferson was ahead of the times, and the scheme was dropped for many years before it was again advanced. It is interesting to note that Jefferson designed this remodeling before his European trip, when he had opportunity of studying the antique at first hand and which confirmed his idea of the desirability of using this temple motif in architecture.

In 1775 Jefferson designed the Virginia Capitol building at Richmond, and it was completed in 1789. He had greatly admired the Maison Carree and modeled the Capitol after this temple with a row of six columns in front. This was the first example of the temple form actually erected in America and created a precedent for those already imbued with classical enthusiasm. In 1799-1801 Latrobe designed and built the Bank of Pennsylvania, with the Greek Ionic order of the temple form.

Jefferson was again to take the initiative in adapting the temple form for domestic purposes. This



Design from "The Modern Builder's Guide," by Minard Lafever, 1833
Compare this with the Mackay house, and it will be understood how the carpenter-builders in the 1830's could produce such interesting houses



Section of the House Illustrated Above
Note the dignity and excellent composition of the interiors



House at Oswego, New York

The simplest and most common expression of the style

temple form in its entirety was adopted in Pavilion II (1818), a professor's house of the University of Virginia. While this professor's home contained a classroom, it was primarily for the use of the family. With this beginning it was not long before new examples began to appear elsewhere. George Hadfield designed and carried out "Arlington" (1826) with six great Greek Doric columns after the temple of Paestum. Nicholas Biddle in remodeling his country house at Andalusia (in 1835) took the extreme step by encircling his dwelling with a colonnade forming a peristyle temple instead of the more frequent prostyle arrangement. Biddle was the first American to travel to Greece, where he became much interested in Greek art, so it is not surprising that he should be the first to make this radical interpretation. All that was now necessary was a house built like the Parthenon itself, and this was

realized in 1835 at "Berry Hill," Virginia, with eight columns in front instead of six used for the portico.

Throughout the years 1821-1827 the war of Greek independence added fresh impetus to the classical movement. America was strongly in sympathy with the Greek cause and now evolved a desire for things Greek in every phase of life. Many of the towns of America received Greek names, as Athens in New York and Georgia, Sparta and Corinth in New York and Ypsilanti, Ionia and Scio in Michigan. Myriads of temple houses sprang up all over the country, in the North, South, East and West. The orders and details were carefully reproduced from imported publications on Greek restorations and from American handbooks such as Minard Lafever's "The Modern Builder's Guide," published in 1833. This now rare publication presented designs of the Greek temple house as well as details for doors, windows, etc. A quotation from Lafever expresses the independence of the American craftsman toward British design. From Mr. Nicholson, whom he mentions, he only utilizes his treatises on geometry and construction. To quote, "From the works of Mr. Nicholson of London I have received a greater amount of aid than from any other source. The only

other authors to whom I owe acknowledgment are Messrs. Stuart & Revett, of London, from whose highly valuable and popular work, entitled 'The Antiquities of Athens,' I have borrowed the article



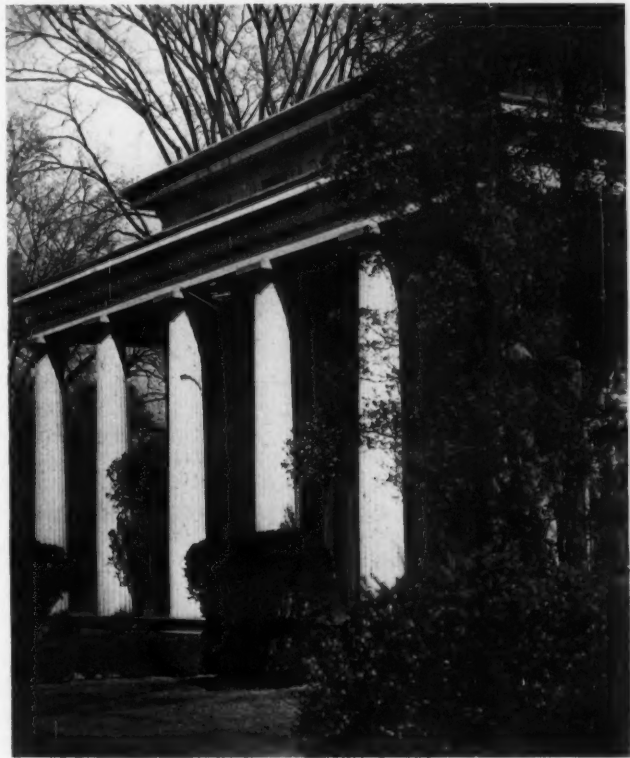
House at New Bedford, Massachusetts

The great monumental mansion of the 30's. In this case not only transverse wings but flanking porticoes have been added, adapting the Greek temple to the popular mansion plan of the preceding century

relating to the Ancient Orders of Architecture." He depended little on others.

In outlying districts carpenters and builders had no difficulty in reproducing with exactness miniature Greek temples to house their clients. Certainly the chaste, dignified results of the first half of the nineteenth century may be favorably compared with much that preceded and with everything in the turmoil that followed.

Although the temple type was the most prevalent form and that which gave America its individual expression, other modifications had wide practice. The colonnaded front without the pediment was in common usage, although not as successful as that with the pediment. Another variation was that of the one-story wings flanking the two-story colonnade with pediment. This was the most successful expression, both from the point of view of the exterior and interior design and greater flexibility in planning for the requirements of the family. Indeed this type had many variations, and many of the examples have decided charm. It is a tradition of which we architects of today may readily make use. The simplest expression of the style is a long, narrow building with its end pediment fronting the street and without porticoes to carry the pediment. This is in direct contrast to the Colonial buildings with their long elevations toward the street. Substitutes for columns were square posts or *antæ*, which were less expensive and easier to build, and were generally effective.



The Thaddeus Burr House, Fairfield, Connecticut, 1790
One of the first, if not the first, appearances of the Greek order

The windows of high, narrow proportions were carefully and in all instances successfully spaced upon the facades. Frequently the windows of the first floor ran to the ground, remaining double-

hung, although sometimes casements were substituted. Occasionally triple windows with narrow side lights and square heads were employed. These were introduced in about 1790. When the facade was without the massive orders, a one-story portico of four columns with or without pediment, was most frequently adopted. When the pediment was not used a parapet or coping was employed with a fret or other Greek ornamentation. Recessed doorways with two columns between pilasters or *antæ* with an unbroken cornice gave dignity and importance to another type of entrance. The doorway itself was often composed of sidelights, either with or without straight transoms, with an



The Mackay House, Willseyville, New York

The most interesting phase of the style, the transverse wings allowing great scope in both composition and planning



"Devereaux," Natchez, Mississippi, 1830
The typical southern expression. Note the absence of the pediment

unbroken cornice over them. Engaged columns were as often employed as not between the door and the sidelights. Occasionally a curved transom surmounting sidelights and doorway was borrowed from the preceding period, but with Greek detail and of very different character than was used formerly. The typical pedimented doorways of Colonial days have now entirely disappeared.

The orders of the Colonial period were generally attenuated one or two diameters. Jefferson, however, abstained from this practice and adhered closely to Palladian proportions. When the Greek orders were introduced, the proportions illustrated by Stuart & Revett and similar authors were faithfully imitated. However, it was not uncommon at a somewhat later date to find the orders attenuated. Up to 1817 the Greek Doric was the popular order employed, to be followed by the ascendancy of the Ionic. This in turn about 1833 was superseded by the Corinthian of the Lysicrates type. An unfailing characteristic was the full entablature completely encircling the building.

The interiors were bold and dignified. They were decidedly architectural, composed of straight, severe lines and with a tendency toward heavy detail. The

walls were severely plain, plastered surfaces, without a dado or other interruption. The outstanding feature was the separation of rooms by means of *antæ* and columns with invariably the full entablature running around the room. The rooms were high-studded, with a pleasant though severe distribution of openings and chimneypieces. The doorways were wide and together with the *antæ* and columns created division between rooms; the first floor was opened up at the expense of privacy and intimacy. These rooms lent themselves to large gatherings rather than to intimate *tete-a-tete*. Wainscoting of every character had disappeared, in lieu of which the attention was devoted to delightful doorway and window trim. The chimneypieces were most frequently of black marble with wide, flat pilasters or columns and without overmantels. The characteristic trim had corner blocks with deep-cut rosettes. The moulded trim was of heavy, full contour, symmetrical on a central axis. Frequently a long middle block takes the place of the key, and this block is often carved in deep relief. Strangely enough, this trim is far from Greek in derivation, but harmonizes perfectly in its setting and is one of the entirely original expressions of the period. In fact it outlived the Greek revival and obtained well throughout the entire century, I am afraid, to its detriment and unpopularity, which is hardly deserved when the early examples are seen.

By 1850 the Greek revival had drawn to a close, and the "wooden Gothic" and "early Pullman" came into their own, creating a second "Moyen Age." One may well remember how much the Greek revival has to do with the new classic revival of the present, which began in the 90's. Certainly there are today many strivings like to those of a hundred years ago.

NOTE.—Mr. Major is preparing a work upon the Greek revival, particularly its domestic phases, and would be glad to receive photographs of such examples as his fellow architects have. He would also be grateful to know of examples of work of this character. Mr. Major's address is 154 East 61st Street, New York.—THE EDITOR.



"Berry Hill," Virginia
The final realization; eight columns instead of six; the Parthenon transplanted to America

✓ The Palazzo Linotte, Rome

By LLOYD MELVILLE HENDRICK, JR.

ORIGINALLY a private dwelling, like its neighbor the Massimi, the Palazzo Linotte was erected about 1523 to accommodate Thomas Le Roy, a French prelate called to Rome and undoubtedly attached to the papal staff in the nearby Cancelleria. Le Roy's origin and family are pleasantly recalled in the frequent use on the building of the fleur-de-lys combined with his armorial lilies. The authorship is much in doubt, lying between Peruzzi and San Gallo the younger, with most authorities favoring the latter.

The front which is called the principal facade in the accompanying drawings was originally the entrance front, and most certainly faced an open space instead of the present narrow alley. From the entrance a barrel vaulted vestibule leads into a courtyard. The building surrounds this in a U-shaped manner, the open side enclosed by a one-story wall pierced by an archway opening upon a modern terrace reminiscent of a former garden development. The side which faces upon the Corso Vittorio Emanuele and contains the present entrance is wholly modern.

Old photographs and drawings show here a miscellaneous collection of structures of the poorest kind built against and into the Linotte to the depth of the present loggia. In the restoration, completed in 1898, these excrescences were torn down, and construction made of the existing facade which takes up the lines and carries out admirably the

character of the old portions of the building. The corner loggia in three stories is an element of doubt if we try to find for it any historical basis as being part of the original scheme. Yet beyond its use at the ground story as the present entrance it serves no requirement of the municipal art commission which has occupied the building since its restoration. On this account, and knowing the solicitude elsewhere for faithful reproduction of the older parts, it may be reasonably concluded that the restorers had access to information not available now, and found therein authority for the loggias.

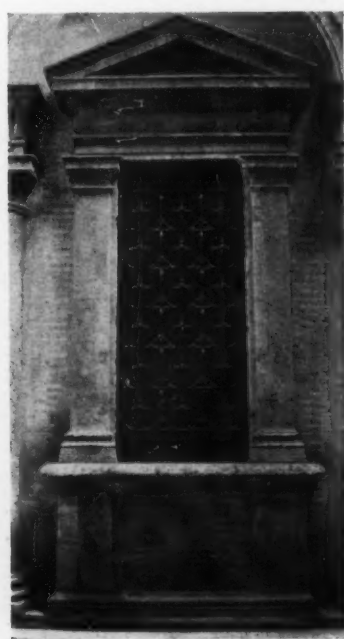
The chain of historical accuracy, on which too much emphasis is often put, may be laid aside in the agreeable appreciation of the building as it stands. Up to the second story windows the material is travertine; above, the field of the walls is brick to match, with travertine trimmings. The sashes are leaded and glazed in different patterns with small panes that vary from translucent white to faint orange and purple. None can deny that this and similar details frequently passed by as trivial contribute vastly to the satisfaction of the beholder. The walls and ceilings of the loggias on the street side above the first story are finished in travertine, cippolino, serpentine and marbles of white and gray that combine pleasantly with plaster surfaces colored flat in some cases and elsewhere decorated more elaborately. If it be a dangerous business to speak of this modern work in the same breath with



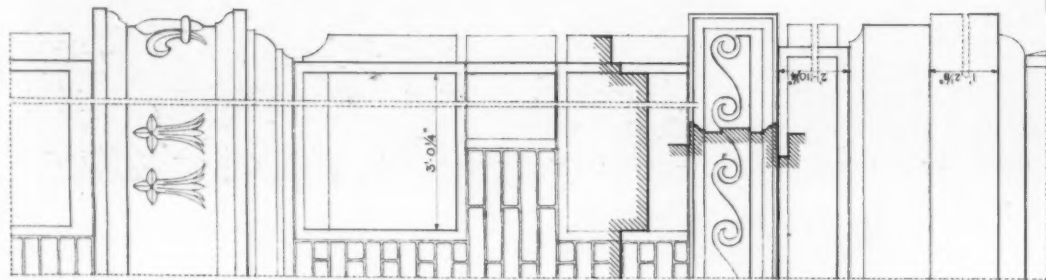
Vestibule, Principal Facade



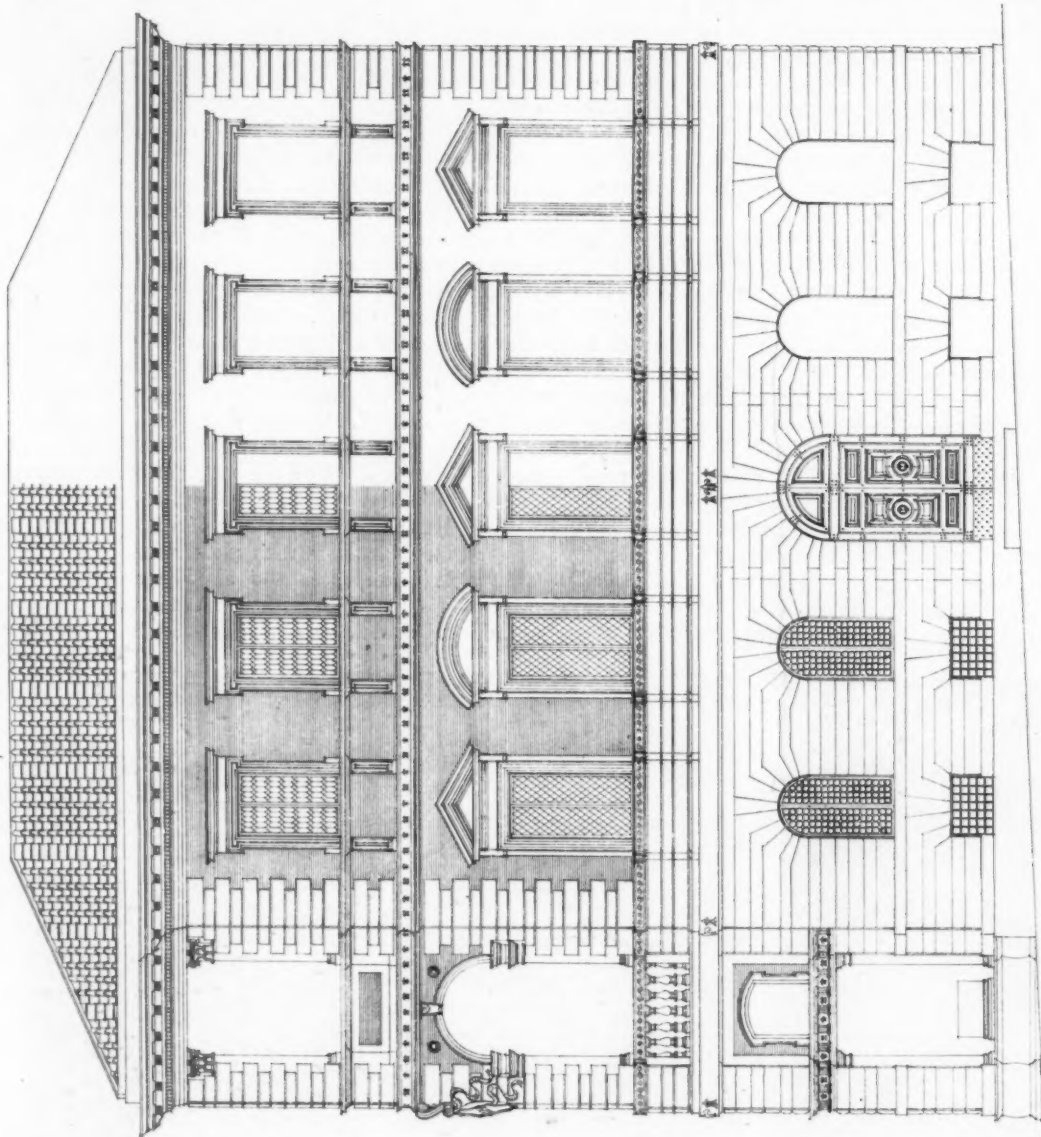
Entrance, Principal Facade



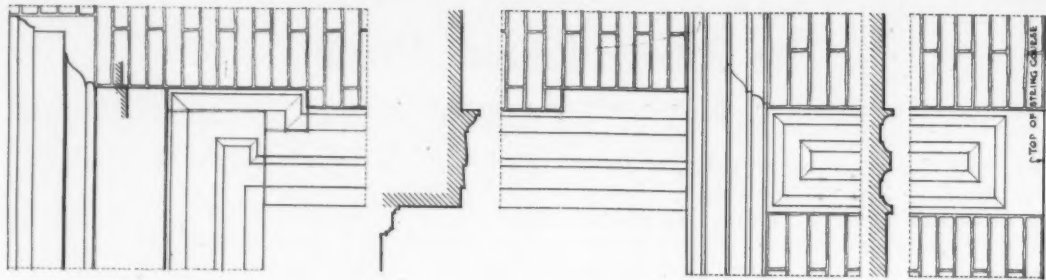
Well Opening in Courtyard



STRING COURSES at 2nd & 3rd STORIES



PRINCIPAL ELEVATION



THIRD STORY WINDOW

SCALE of ELEVATION $\frac{3}{8}$ IN = 1 FT.
SCALE of DETAILS $\frac{3}{16}$ IN = 1 FT.

PALAZZO LINOTTE ROME

MEASURED and DRAWN by
LLOYD MELVILLE HENDRICK, JR.

that of the master decorators of the Renaissance, at least it can be truly said that as one views it from the street it is a delight to the eye.

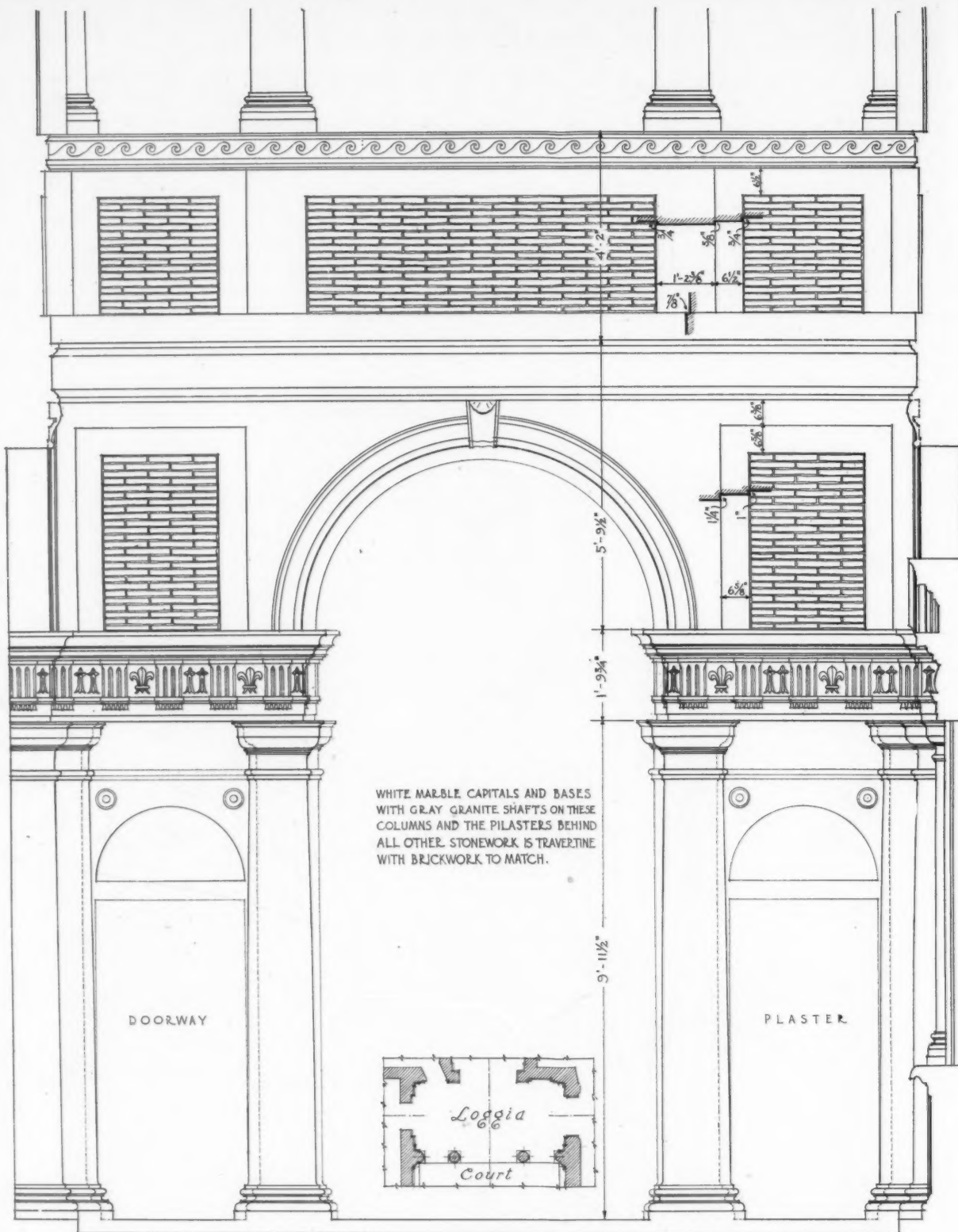
That which was originally the rear elevation is very irregular in composition, largely on account of windows placed on stair landings; and the windows in the bay farthest from the street are jammed hard against the quoins of the corner in a way that not even a generous imagination can excuse. Typical of its period, the principal facade, aside from the end of the loggia, is formal in its arrangement, and the same treatment continues on what we may call the right-hand elevation. A close inspection of the mouldings and carving reveals the "quality" of the

author, and may well allow us to say that here was a man of purity of taste and wise in understanding of the true relation of line and surface to visual effects.

Of special interest are several points of detail. A comparison of the capitals of the pilasters with those of the columns in the Tuscan order of the first story shows a considerable flattening of the curve of the echinus in the former; the feeling of support is not stressed where it is not necessary. The architrave of the third story windows, simple in thought, is vitalized by giving the flat surfaces a splay that the eye would never chance upon, but which is clearly brought out by a profile gauge. The capitals



Facade of Palazzo Linotte on Corso Vittorio Emanuele

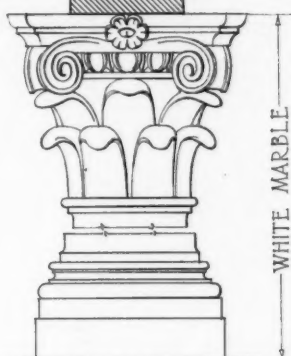


ELEVATION OF FIRST STORY
OF LOGGIA IN COURTYARD

PALAZZO LINOTTE · ROME

MEASURED and DRAWN by
LOYD MELVILLE HENDRICK, JR.

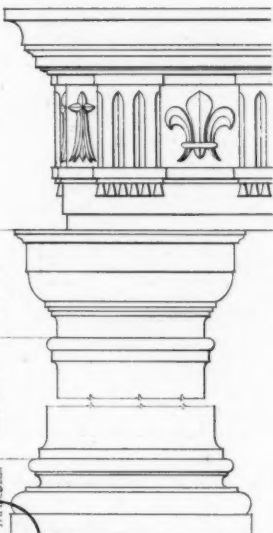
COL. NECKING
AND BASE



WHITE MARBLE

3RD STORY ORDER & CORNICE

COL. BASE



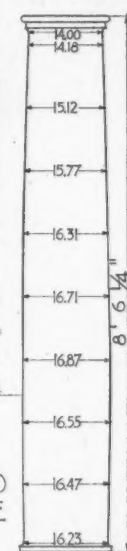
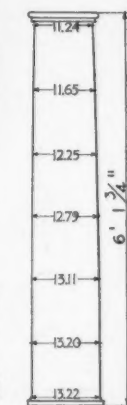
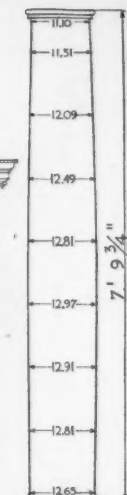
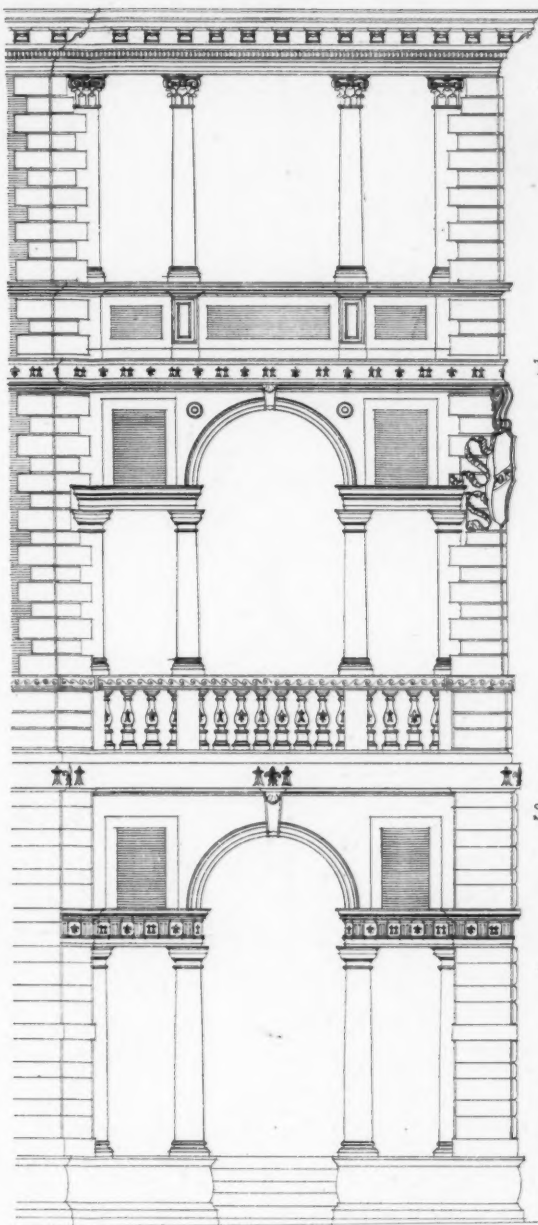
WHITE MARBLE
LIGHT GRAY GRANITE

1ST STORY ORDER

CAP ON
ENGAGED COLS.

CAP ON FREE-
STANDING COLS.

DETAILS AT $\frac{3}{4}$ IN. SCALE • PROFILES AT ONE-HALF
FULL SIZE



SCALE $\frac{1}{8}$ IN. = 1 FT.

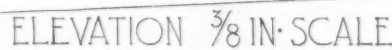
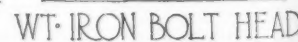
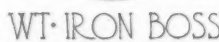
TRAVERTINE AND BRICK (SIX COURSES TO
10 INCHES) TO MATCH, ARE USED EVERYWHERE
EXCEPT AS NOTED ON THE COLUMNS.

ENTASIS OF COLUMNS
DIMENSIONS GIVEN ARE OF THE
DIAMETERS (IN INCHES) TAKEN AT
1 FOOT INTERVALS - $\frac{1}{8}$ IN. SCALE

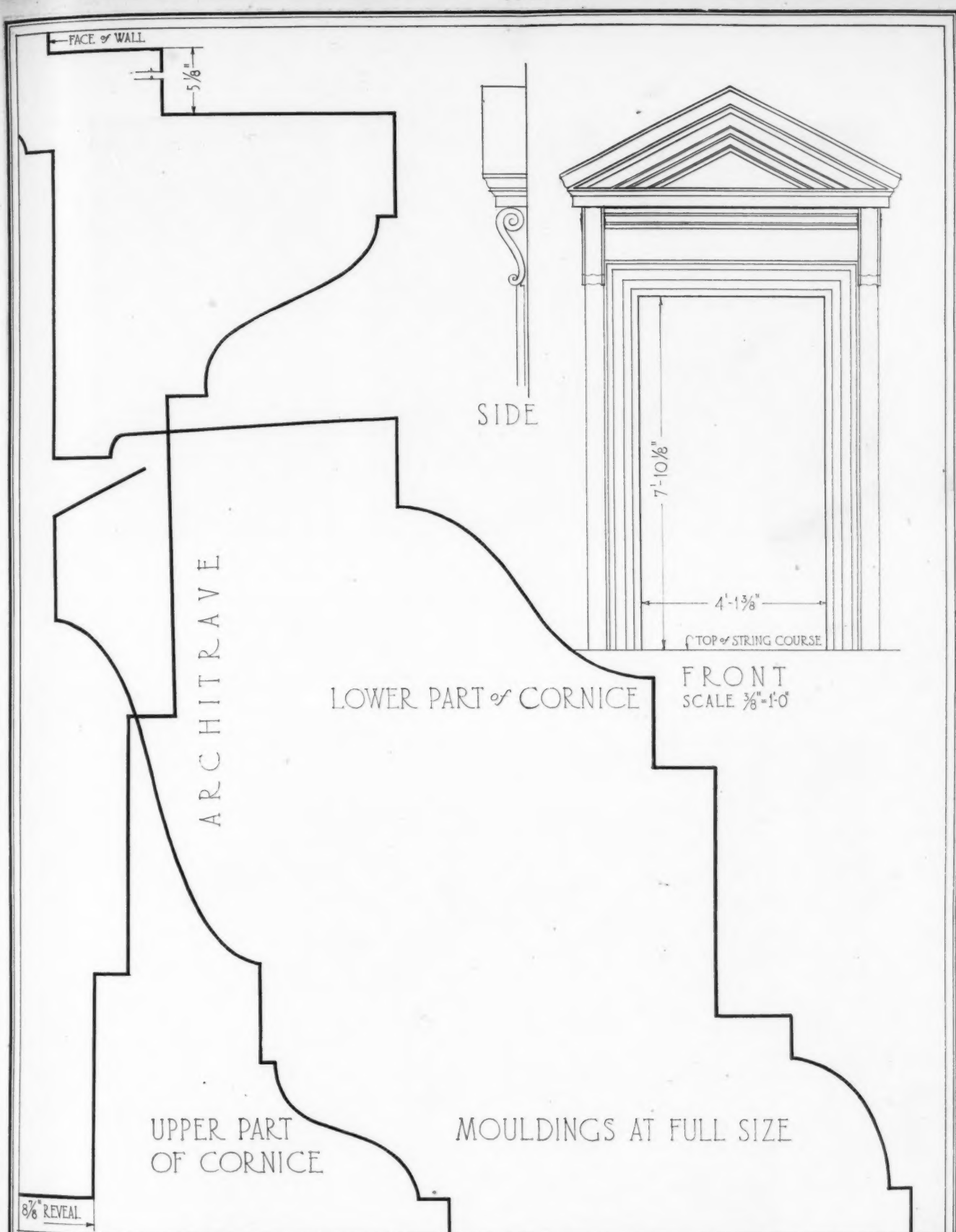
ELEVATION and DETAILS of
LOGGIAS on STREET SIDE

PALAZZO LINOTTE • ROME

MEASURED and DRAWN by
LLOYD MELVILLE HENDRICK, JR.



February, 1907



DETAILS OF
SECOND STORY WINDOW

PALAZZO LINOTTE · ROME

MEASURED and DRAWN by
LLOYD MELVILLE HENDRICK, JR.



Rear Gate Looking into
Courtyard



Balustrade Detail of Second
Story Loggia



Doorway at End of Third
Story Loggia

of the third story order in the loggia are rather wide-spreading for the slender columns under if we judge by the drawing, but they bear up perfectly the cornice above that is proportioned for the building. The stonework is made to yield its maximum interest through the use of rusticated surfaces, mouldings, etc., rather than by a weak dependence upon joints; hence these are rarely visible except when one looks for them. Each of the upper stories is set back but very slightly from that beneath it; here

is the desire to anticipate the effect of leaning outward. By such means as these, applied to a structure of excellent proportions and well chosen elements, did the designer evolve a work that has already been copied almost exactly elsewhere in Rome, and has furnished the motif for one of New York's most graceful banks. By reason of its moderate scale and the comparatively simple character of its ornament the palazzo possesses an unusual value as an architectural study.



Detail of Court Loggia



Detail of Exterior Loggia

✓ Stained Glass Construction and Details—I

By WILBUR HERBERT BURNHAM, Artist-Craftsman

With Illustrations by the Author

TO the greatly increasing number of American architects who are creating a high type of art, based upon beautiful and lasting architectural models, stained glass has a strong appeal. Its proper use enhances, while its misuse utterly spoils, any architectural interior. The principles governing the designing and making of an ideal stained glass window, together with uncraftermanlike methods and their results, are briefly illustrated in this article, which will be followed with a description of the many interesting processes necessary to the making and installing of a window. There will also be illustrations and descriptions of the details which architects should observe carefully in order to be sure that the preparatory work done by building mechanics is in the right direction and, when installed in the building, is ready and proper to receive the leaded glass.

Medieval Glass. In the many books written on the subject of stained glass, varied opinions have been expressed relative to the merits of mediæval work, from its beginning, through the centuries, and into its decline. Although some writers have preferred fourteenth century work, others fifteenth century and so on, they have agreed that the barbaric richness of color and simplicity of twelfth and thirteenth century stained glass were, in the succeeding periods, unequaled. The two dominant

colors used in the early work, red and blue, were of pure and mysterious hues, the red streaky, and the blue a wonderful liquid cobalt. The blue of twelfth century work was of a lighter quality, described many times as a "heavenly" blue. These mediæval craftsmen in stained glass drew in the spirit of the age in which they lived, and the utmost simplicity and purely decorative quality of their figures serve as a valuable object lesson for the decorator of today. Their task was always accomplished in the most direct manner, devoid of meaningless embellishments.

The illustration on page 61 is from a water color of the famous window known as the *Notre Dame de la Belle Verriere*. It is impossible to gain a proper appreciation for this masterpiece in glass without seeing it in its place in the choir ambulatory of Chartres Cathedral. This great cathedral is rightly called the holy of holies of stained glass, for without doubt it contains the most wonderful collection of mediæval windows in all the world. The Virgin with the Child on her knee is the work of the twelfth century, while the remainder of the window, outside of the great central panel, is thirteenth century. It is the common belief, that during the disastrous fire in the cathedral the Virgin and Child panel was rescued, and when the cathedral was rebuilt, the window was restored by the craftsmen of the



Portion of Ascension Window, Le Mans Cathedral

Late eleventh century; earliest window extant

From Painting by Wilbur Herbert Burnham



Portion of Jesse Window, Trocadero, Paris
From Painting by Wilbur Herbert Burnham

thirteenth century. Although this window as a whole is a remarkable example of stained glass, the crowning glory is the twelfth century portion, with its daring background of a deep, rich and glowing ruby, set with jewels of blue. The virgin is robed in garments of light blue, a color seldom seen in later work; the design and color in this panel are of a simple grandeur never equaled in later periods. The Byzantine style of drawing and severity of design together with its remarkably simple dignity, and the noticeably larger pieces of glass, are characteristics of the twelfth century portion that stand out. The remaining parts of this noble window, typically thirteenth century in character, show an advance in draftsmanship and a desire to tell stories in individual medallions. Although the same breadth of design and simple harmony of color in the central panel are partly lost, the work is still distinctly craftsmanlike and mosaic in character.

In this marvelous window of colored glass, all the characteristics of twelfth and thirteenth century work may be studied. That the artist-craftsmen who made this window were colorists par-excellence is proved by their daring use of red and blue. Just the right proportions of white, gold and green are woven through the entire composition to give a perfect balance in color and at the same time offset any possibility of a disagreeable purplish effect. The figures, while naïvely drawn, are conceived in a direct, decorative manner, with no attempt at realism. For centuries this truly great window has inspired lovers of art, and is a striking example of what the ideal window should be, with its flat, symbolic representations.

Transitional Period. The fourteenth

century, or transitional period, as it is commonly called, saw perhaps advances in the technical side of the art of stained glass, but the old ideals were lost, and in place of rich color and simple treatment there developed realism and gray coloring, with naturalistic ornament, and the early Byzantine influence vanished. One problem, however, was solved in this period. A growing desire for lighter churches resulted in a combination of single figures and *grisaille*, a new type of ornament in white glass, geometric in design, with interlacing bands of color. A delicately traced foliated pattern on the white glass subdued the glaring light and gave to the window an extremely soft and beautiful light. The invention of the stain, to which later reference will be made, helped materially to blend the white glass with the colored figures. The canopy work, which in earlier glass was but a part of the whole design, as in the top of the *Belle Verriere*, became more important than the figures. Subjects became a rarity, and the single figures, all more or less alike, were beginning to take on an effect of high relief in modeling and a delicacy of rendering.

Late Gothic Glass. The fifteenth century, or late Gothic period, was noteworthy for its advanced and delicate style of drawing, increased use of stain, and pinnacled canopies. The canopies, now almost all



Portion of Jesse Window, Twelfth Century, Chartres Cathedral
From Painting by Wilbur Herbert Burnham



WINDOW OF NOTRE DAME DE LA
BELLE VERRIERE, CHARTRES
CATHEDRAL

From Water Color by Wübur Herbert Burnham

The Virgin with the Child is the work of the twelfth century, while the remainder of the window, outside of the great central panel, is thirteenth century



Medallion Designed and Executed by Wilbur Herbert Burnham
In this medallion the charm of mosaic color and simplicity of design of the twelfth and thirteenth centuries are combined with the delicacy in the drawing of the fifteenth century

white, enhanced by the stain, became better proportioned and more delicate, and naturalistic ornament was abandoned. The one great loss, however, was the very noticeable lack of mosaic character, due in a large measure to the common use of stain. Leading became minimized, for with the use of stain, larger pieces of glass could be used to advantage, with truly beautiful results, however. Unlike the twelfth and thirteenth century craftsmen, who really drew their designs in lead, the fifteenth century worker was leading to fit his design. His progress in the technique of painting was remarkable, but the tendency was to rely more on the paint

than on the glass itself, which on the whole was somewhat gray and subdued in color.

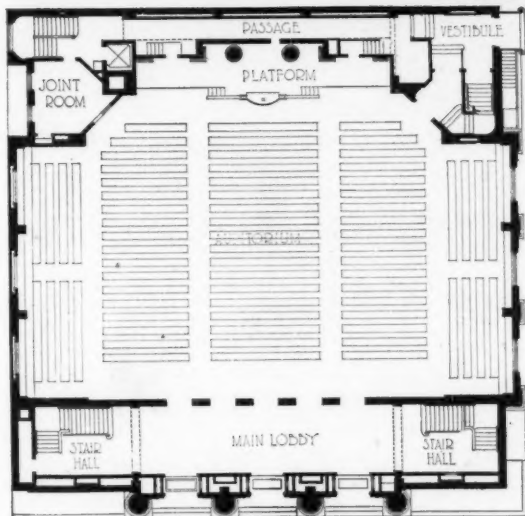
Renaissance Glass. Picture windows came into vogue in the sixteenth century, beautiful in drawing and in the technique of painting, but showing withal an absolute disregard for the fundamental principles of the craft. Enamel colors were discovered, and the glass painter could at last paint a realistic picture. Large sheets of white glass were employed, and the painter was not hampered by lead lines. But his pictures on glass were absolute failures; the soft enamel colors were not permanent, and in time peeled off the glass, leaving patches of white glass over the window. It must be admitted, that although the sixteenth century worker in glass was not a decorator in any sense, he was a painter of a very high order. But alas! His wonderful painting on glass soon lost its glory and became a dull, lifeless imitation of a painting on canvas. A rapid decline in the art followed, and in the seventeenth and eighteenth centuries it became virtually one of the lost arts, until in the age of Pugin and the great Gothic revival in England a new interest in the art developed, and its lost ideals were restored. Especially in England, stained glass windows became greatly in demand, and the artists in glass received a new inspiration.

Unfortunately, however, this great demand for windows in colored glass soon caused the introduction of commercialism, resulting in a great number of deplorable windows, the productions of large stained glass firms in Germany, England and America. Many of these factories still exist, turning out windows on a huge scale. While, to be sure, these windows have in themselves a certain merit, as did the picture windows of the Renaissance, nevertheless, a direct sinning against the true principles of craftsmanship is much in evidence, and the intrinsic beauty of the material is of secondary importance.

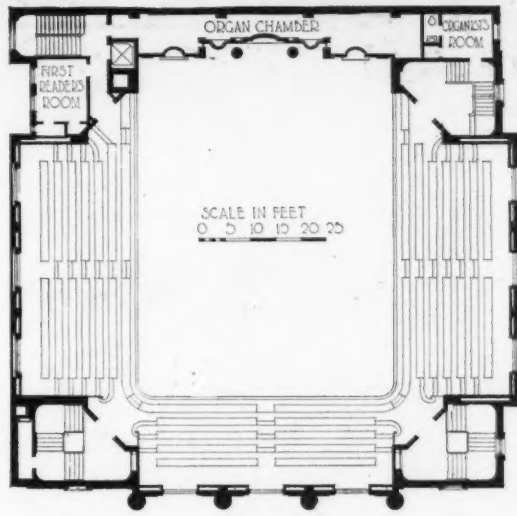
This condition is partially responsible for the sincere efforts on the part of several of our honest artist-craftsmen to place the art on the high plane it is beginning to occupy, and their influence is being felt. The future for the noble art is most encouraging, and American craftsmen are doing their full share in this new great revival. Our architects who are striving sincerely to create cathedrals and churches to inspire the Christians of today and of the future will find in many modern craftsmen in stained glass a spirit of hearty coöperation, and a sincere desire to create windows worthy of a place in the House of God, but there are countless instances where unworthy glass has marred, when it has not irreparably ruined, the noblest efforts of architects. Windows are among the details of a building that cannot be hidden.



GENERAL EXTERIOR VIEW



MAIN FLOOR PLAN



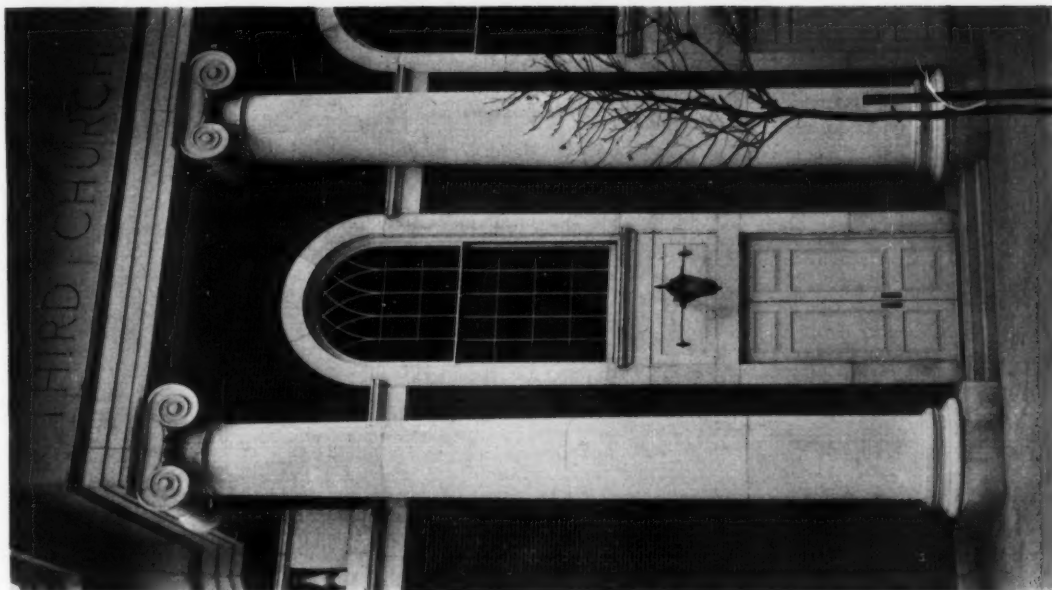
GALLERY FLOOR PLAN

THIRD CHURCH OF CHRIST, SCIENTIST, PARK AVENUE, NEW YORK

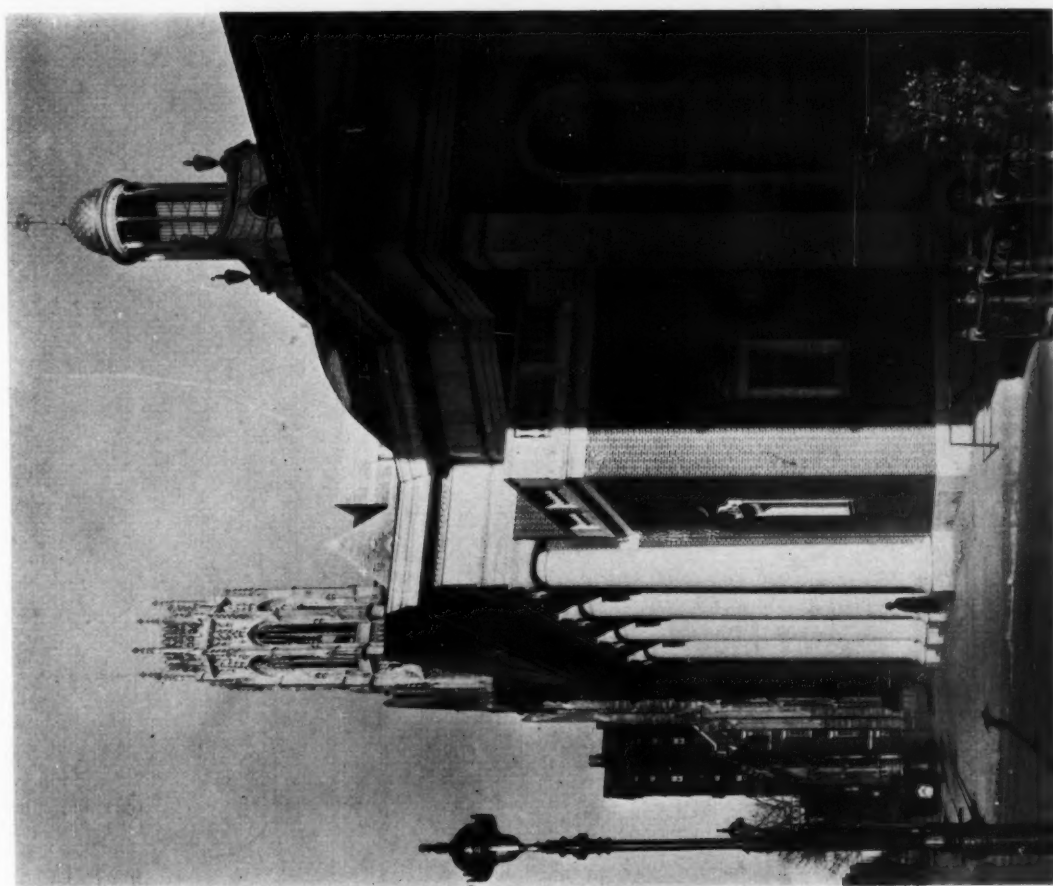
DELANO & ALDRICH, ARCHITECTS

Photos, Paul J. Weber

Architectural
Library



DETAIL OF ORDER



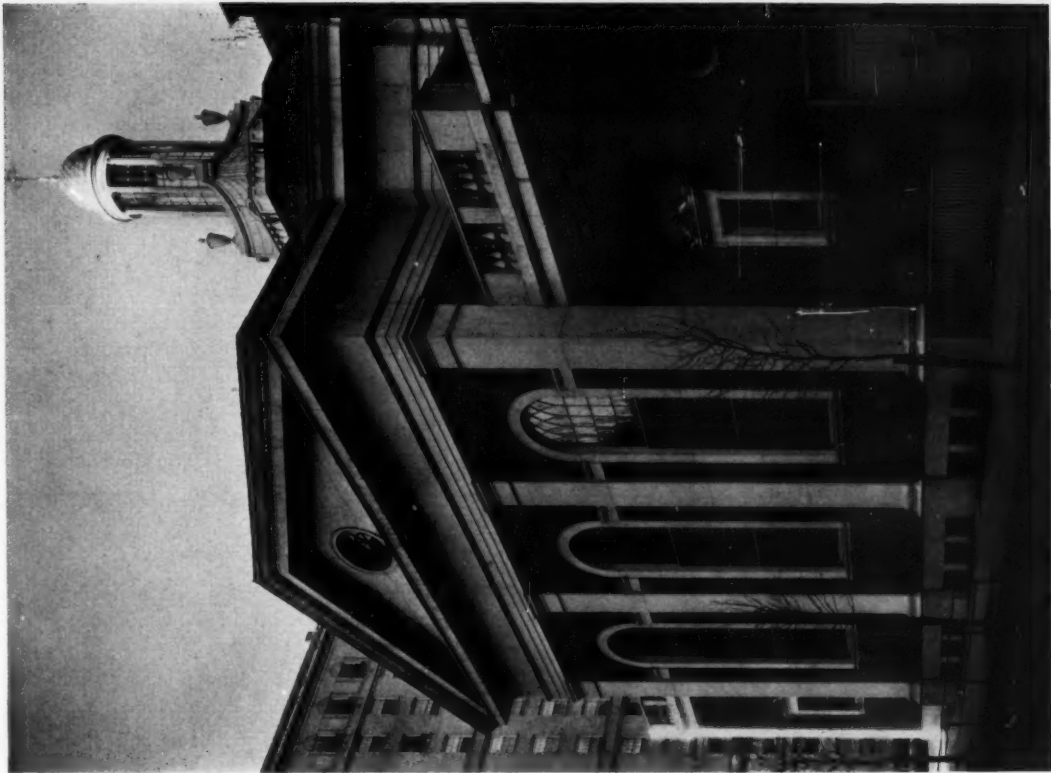
VIEW FROM THE SOUTH

THIRD CHURCH OF CHRIST, SCIENTIST, PARK AVENUE, NEW YORK

DELANO & ALDRICH, ARCHITECTS

Architectural
Library

Architectural
Library



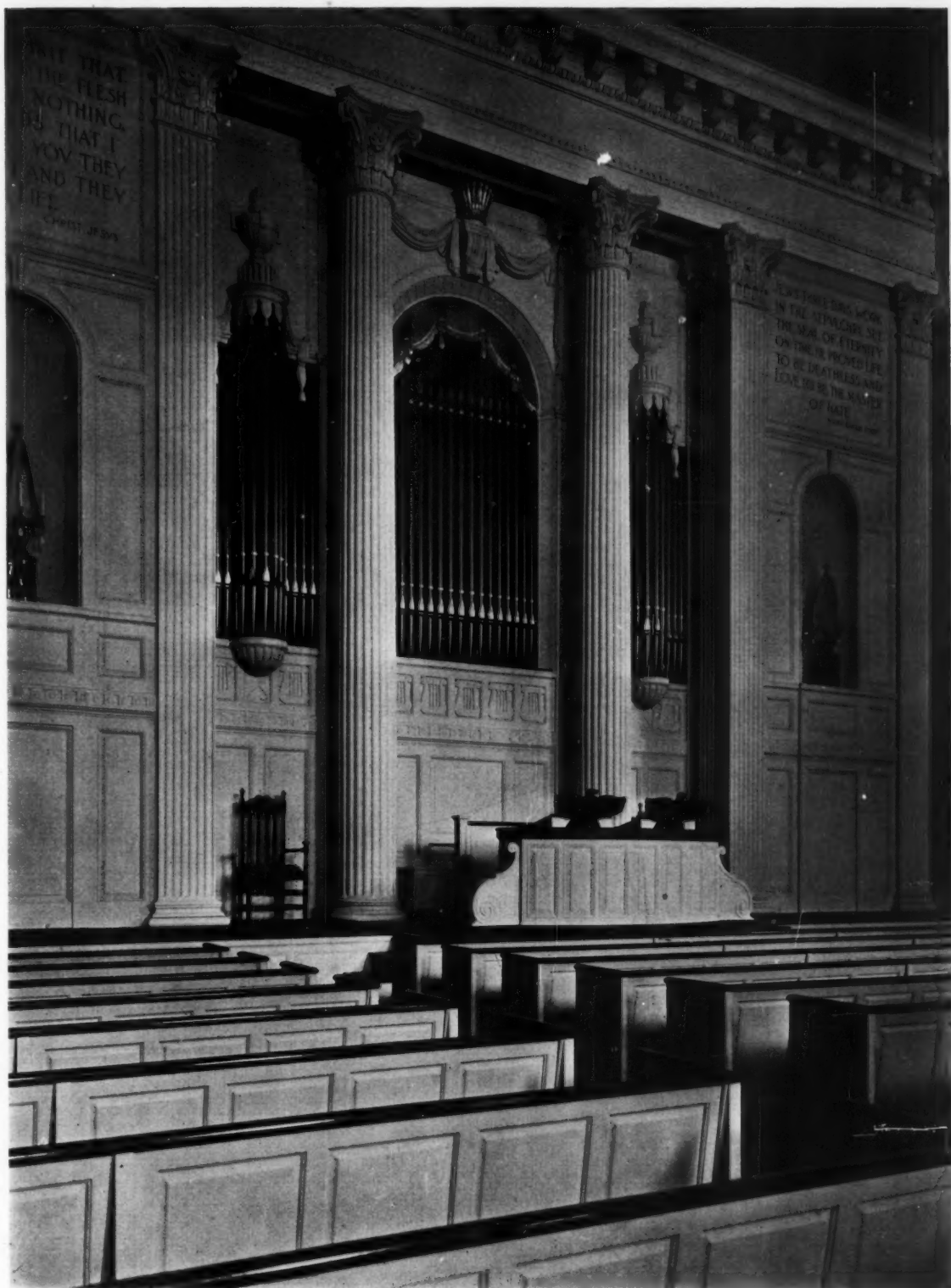
DETAIL OF SOUTH SIDE
THIRD CHURCH OF CHRIST, SCIENTIST, PARK AVENUE, NEW YORK
DELANO & ALDRICH, ARCHITECTS



DETAIL OF FACADE

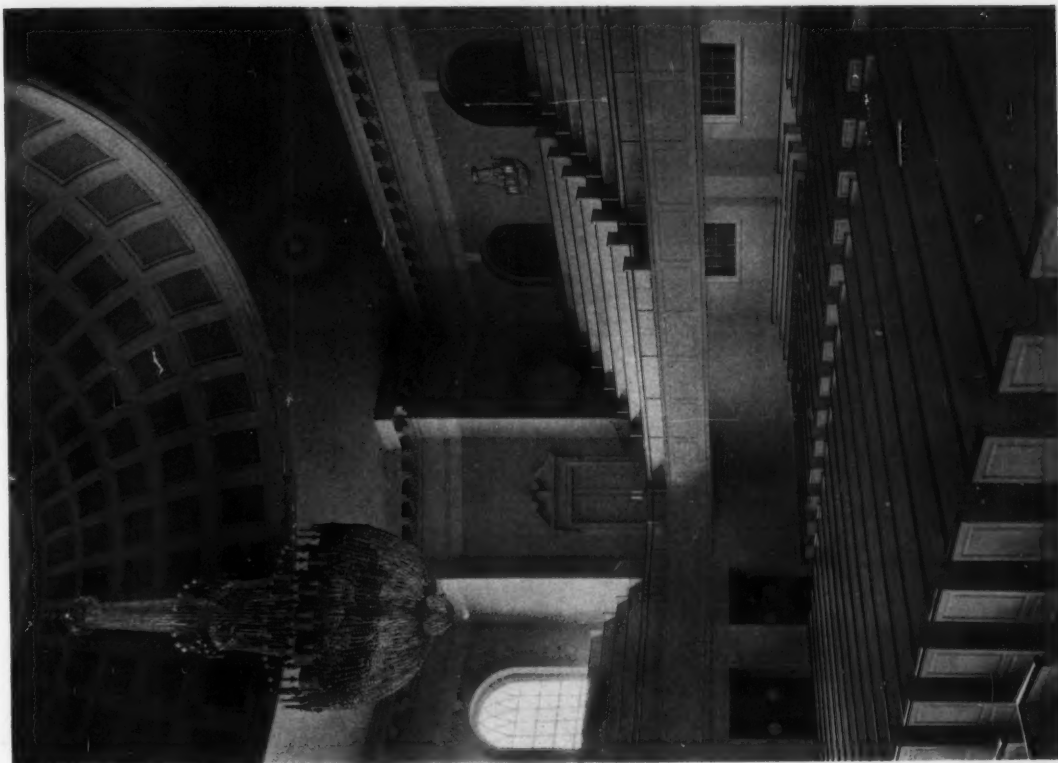
Architectural
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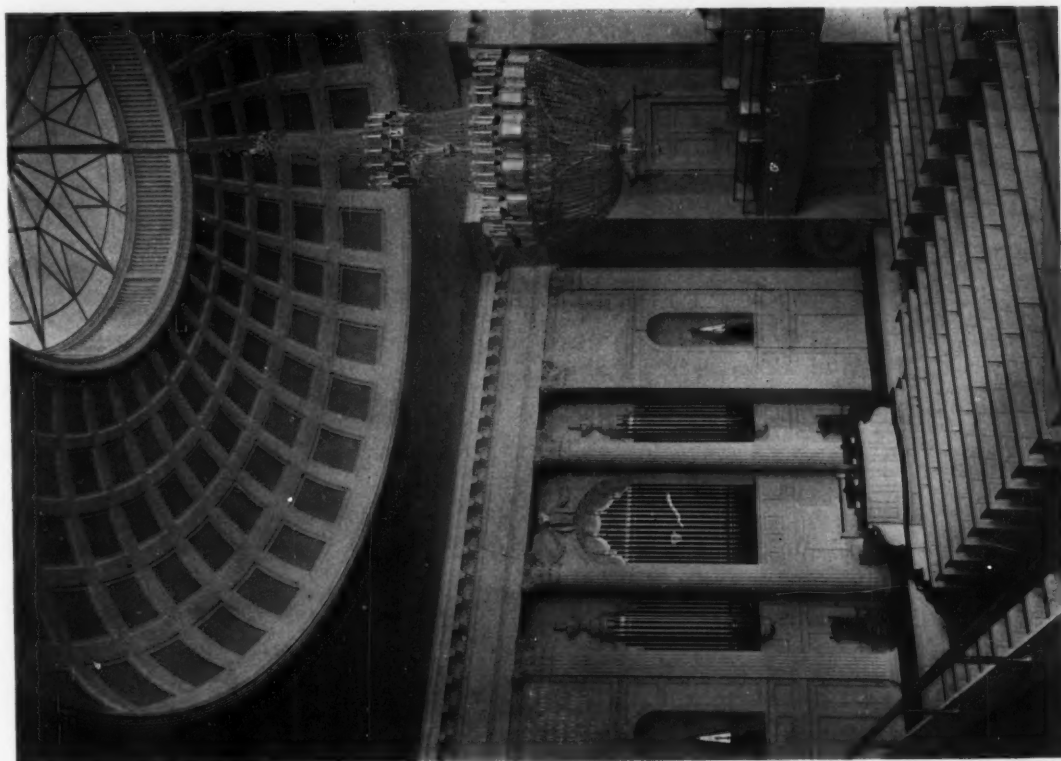


DETAIL OF PLATFORM AND ORGAN SCREEN
THIRD CHURCH OF CHRIST, SCIENTIST, PARK AVENUE, NEW YORK
DELANO & ALDRICH, ARCHITECTS

Architectural
Library



VIEW LOOKING TOWARD ENTRANCE
THIRD CHURCH OF CHRIST, SCIENTIST, PARK AVENUE, NEW YORK
DELANO & ALDRICH, ARCHITECTS



VIEW LOOKING TOWARD PLATFORM

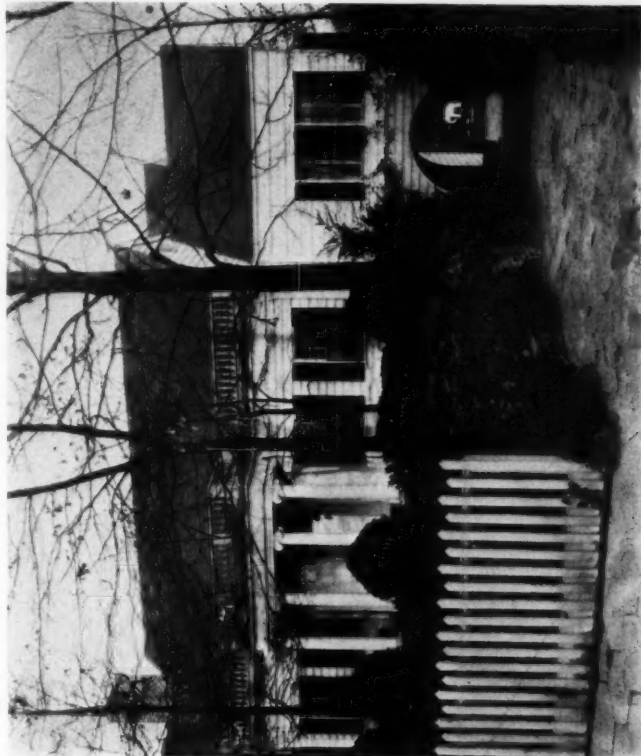
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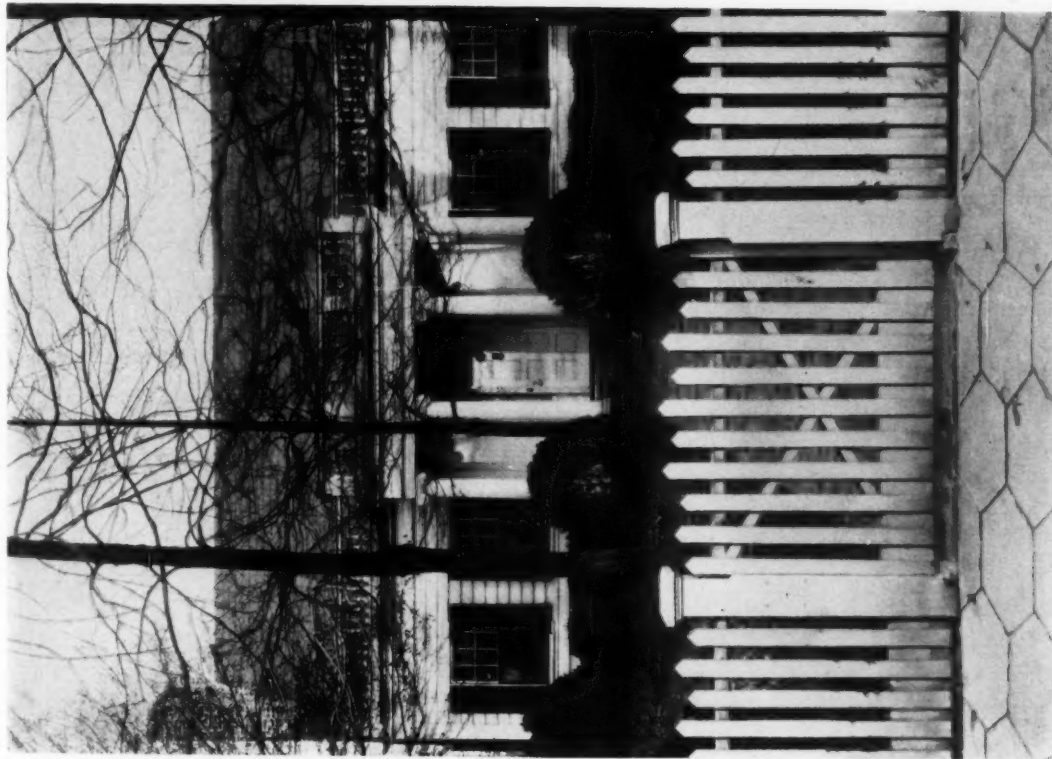
DETAIL OF ENTRANCE PORCH
HOUSE OF HUNTER PERRY, ESQ., ATLANTA
HENTZ, REID & ADLER, ARCHITECTS

Photos, Tebbz & Knell, Inc.

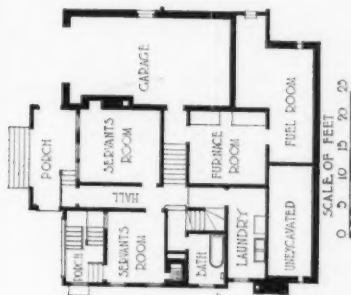
Architectural
Library



GENERAL VIEW OF FRONT



VIEW FROM THE STREET

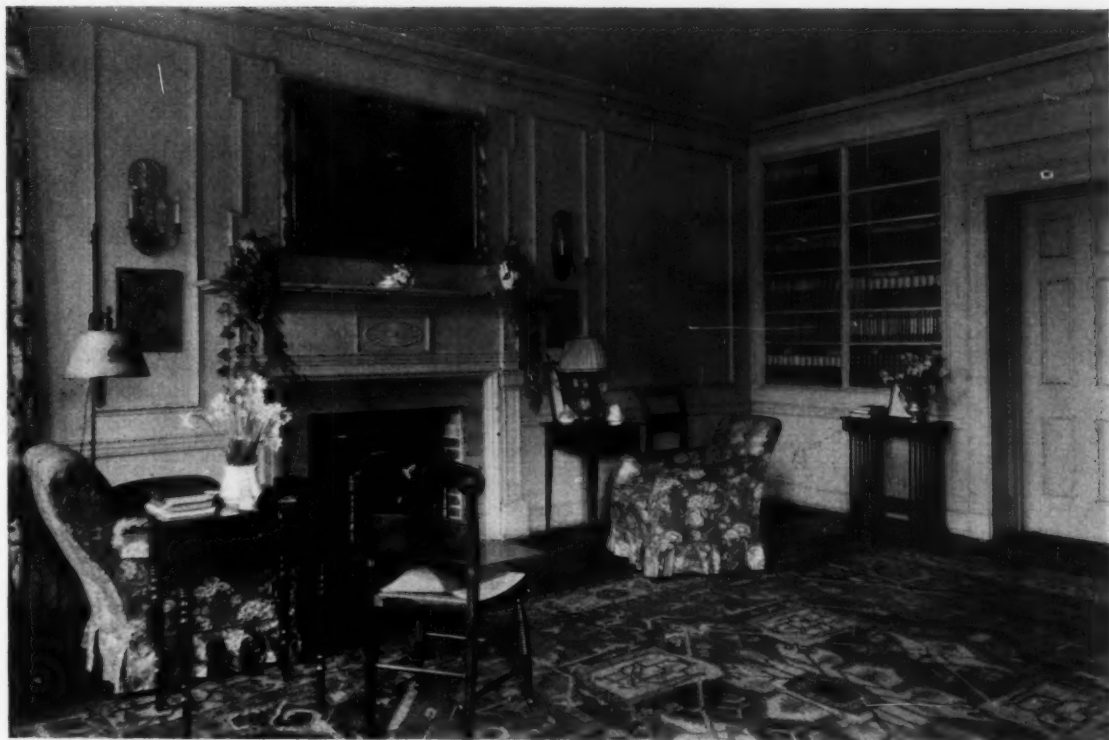


HOUSE OF HUNTER PERRY, ESQ., ATLANTA
HENTZ, REID & ADLER, ARCHITECTS

SCALE OF FEET
0 5 10 15 20

Architectural
Library

Architectural
Library



LIVING ROOM

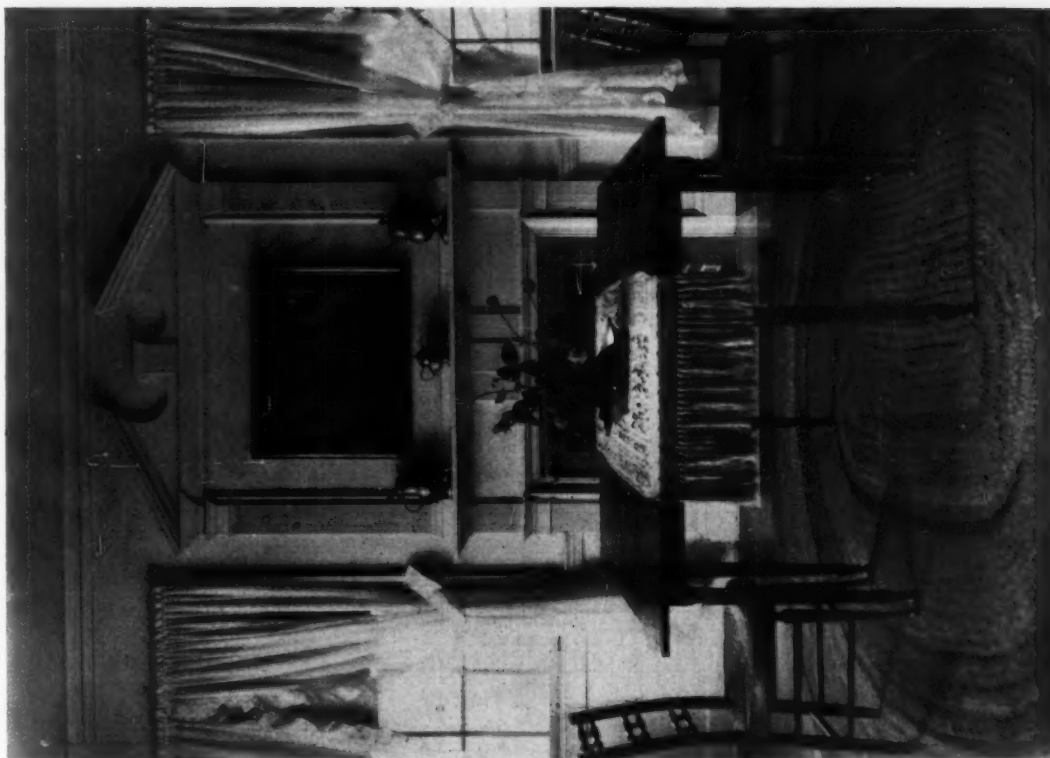


DINING ROOM

HOUSE OF HUNTER PERRY, ESQ., ATLANTA
HENTZ, REID & ADLER, ARCHITECTS

Architectural
Library

Architectural
Library



DINING ROOM MANTEL



FURNITURE GROUP IN HALL

HOUSE OF HUNTER PERRY, ESQ., ATLANTA
HENTZ, REID & ADLER, ARCHITECTS

Architectural
Library

Architectural
Library

√The Public Library Building Plan—II

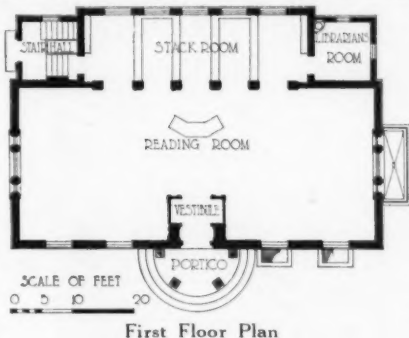
By JOHN ADAMS LOWE

Assistant Librarian, Brooklyn Public Library

IN a previous article the writer ventured the opinion that some day a clever architect will design a library interior that will contain a genuine reading room. What efforts are librarians making toward this accomplishment? Are they fair in presenting reading rooms that are not honest? The excuse offered is that the rooms are not used for reading only but for storing books and distributing them, as well as for the display of current magazines on the tops of large tables. To him who knows books and understands the joy of reading at home in an atmosphere of books such a room offers little incentive to sit and browse. And to him whose only adventures into the contentment of reading have been in a public library the room says, "This is the way to do it." Is it? How do you read a book at home, at the studio or the club? Do you pull up the heaviest chair in the house to a heavy oak table 5 feet wide and 15 feet long, brush aside the omnipresent magazines that cover it and lay your book on the table and read? Do you face the light because the chair faces the window? And are you required to sit where you will bump elbows with someone

flicking over the pages of a pictorial magazine and where every time you glance up from a page you stare straight into the eyes of a stranger?

Some brave architect will find ways of arranging window seats, and wall lounges, with lights conveniently located for reading. He may have small alcoves to encourage privacy. He will furnish his reading room with rugs, the long-wearing varieties which come in acceptable patterns; with draperies at the windows, not brocaded satin and velours, but cotton cloth, muslin, sun-fast fabrics which can be readily washed; with a variety of comfortable chairs, and floor lamps and table lamps with shades that function and focus the light when it is needed; and with tables, but tables which have use and meaning in reading. Discipline may be hard in such a room. Loafers of all grades of intelligence would have to be taught the value of the room and shown how to use it or to leave it. But in the meantime someone may be encouraged to read, to do more than turn magazine pages, may possibly get the library habit, and may even come into a realization of what a friend a book can be if one has half a chance to get acquainted with it.



Goshen Library

Harvard brick has been used for the exterior walls, Vermont marble for trim, and slate for the roof. The reading room is paneled to the ceiling with oak. Floors of entrance vestibule are of tile, side entry of cement, and floors of reading room, stack room and reference alcove are covered with linoleum. Heating is from direct steam apparatus. Reading room seats 50, and provision has been made on metal stacks for 20,000 volumes. The position of the desk gives the single attendant view of the entrance and the entire floor. Basement contains a historical room, boiler room, toilets, and additional book stacks. Building contract was let in April, 1916; cost of structure without furnishings was \$30,000 or 25 cents per cubic foot



Goshen Library and Historical Society Building, Goshen, N. Y.
Huse Templeton Blanchard, Architect

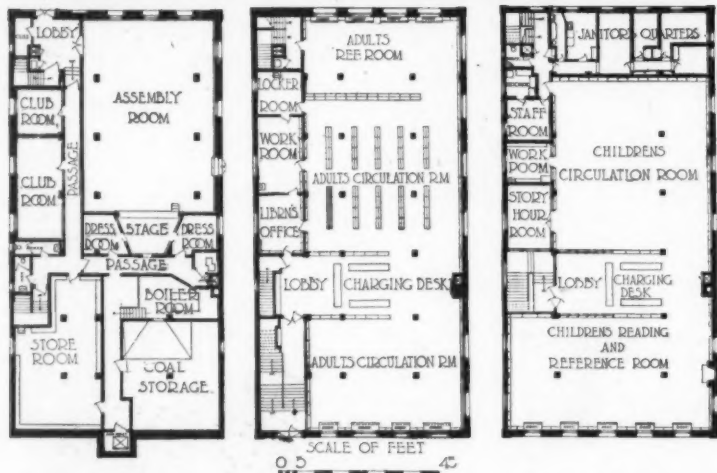
The weakness in the plans for most reference rooms, undoubtedly due to the same cause of inadequacy as the reading rooms, lies in the fact that they have to serve too many purposes. Some day our architect is going to plan a reference room which will be a most serious place—a place for study only, with small separate desks and a chair to each, and with a little shelf nearby for a few

books chosen for the use of the student. Absolute silence and seclusion are the rule here. Books which a research worker would need and only those would be allowed on the shelves of this room. It would be necessary to have an attendant in charge at all times, and near her desk would be placed in the wall a vertical file for clippings and reference material and shelving for oversized books like atlases, city directories, encyclopedias and the latest bound copies of magazines—not long files of magazines. There must be provision here for storing and using maps. If there is no art department the picture collection will probably be located here, in large vertical file boxes.

A part of the building must be devoted entirely to the children. For a limited number of hours, usually from three to six o'clock in the afternoon, much of the activity of the library focuses in the children's room. Except in the smallest buildings, it will be necessary to have an attendant in this room during all the hours that it is open, and on this account and because all books for children, the card catalog, and the juvenile reference or school collection will be assembled here, it is not necessary to plan this room in conjunction with any rooms used by the adults.

An eastern or southeastern exposure is good for this purpose, for the force of the sun will be gone in the afternoon. Some librarians insist upon a western exposure in order that the room may be flooded with light when the children are present. The matter of light in this room is as important as that in the adult reading room and should be treated as carefully.

A children's room should be given convenient space on the main floor, preferably with a separate entrance from that used



Basement Floor Plan

First Floor Plan

Second Floor Plan

Fordham Branch Library Building, New York Public Library

McKim, Mead & White, Architects

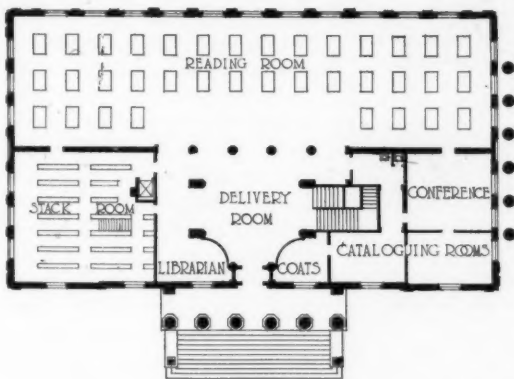
Exterior walls are of red brick with trimming of limestone. Interior walls are plastered, and trim is of wood, stained. Heating is by hot water. There are at present about 25,000 volumes on the stacks, and the annual circulation is approximately 300,000. Main reading room seats 28; reference room, 22. Contract was let May 6, 1922, and the cost was \$141,924.23 or 39½ cents per cubic foot, exclusive of furnishings or architects' fee.



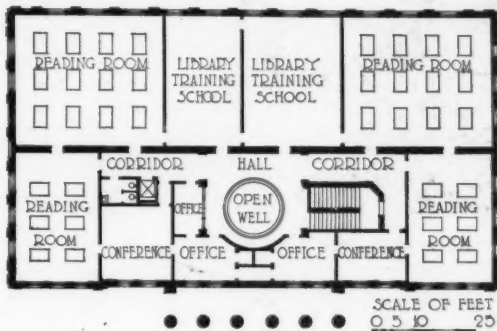
GENERAL EXTERIOR VIEW

Brick and limestone are the materials used for the exterior. Heating is supplied from a central plant. The stacks are designed to accommodate approximately 200,000 volumes, and the reading rooms to seat about 200,

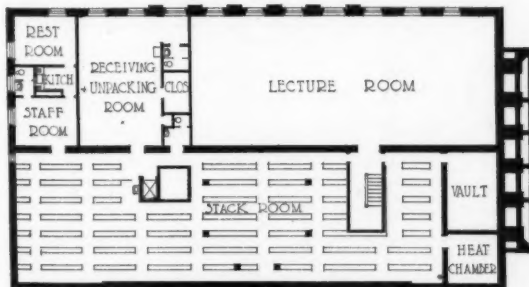
abundantly adequate since the library is not open to the public. The contract was let October 10, 1917, and the cost without furnishings was approximately \$135,000, or about 50 cents a cubic foot



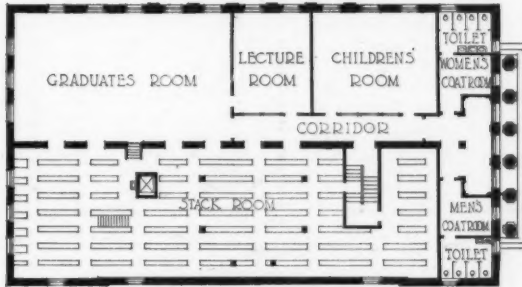
FIRST FLOOR PLAN



SECOND FLOOR PLAN



BASEMENT FLOOR PLAN



GROUND FLOOR PLAN

LIBRARY BUILDING, GEORGE PEABODY COLLEGE FOR TEACHERS, NASHVILLE, TENN.
EDWARD L. TILTON, ARCHITECT; ALFRED MORTON GITHENS, ASSOCIATE

by adults. This will, however, necessitate more than one attendant for the entire building if there are two entrances to be guarded. If adequate and proper space cannot be planned on the main floor it is infinitely better to put the children's room upstairs where ample space of the right kind can be provided. Young people climb stairs more readily than adults, but they require a careful planning of stairways, treads, risers, and railings. A children's room should not be put in the basement unless there is in the room sometime during the day plenty of direct sunshine, good ventilation, freedom from dampness, and ample heat in winter. A plan which fails to make adequate provision for the children at the outset is doomed to radical change and to failure if changes cannot be readily made.

In this room a bulletin board and a few shelves behind glass doors for the exhibit of from 50 to 100 beautifully illustrated books are desirable features. A fireplace may be planned here. Story-hours are part of the activities. Provision may be made for gathering small groups around the children's librarian about the fireplace. If large groups are to

meet frequently it will be well to plan a story-hour room adjoining the main room or easily accessible to it. The main auditorium is only a poor makeshift for such groups, since it is essential that storyteller and audience shall be in the closest comfortable proximity.

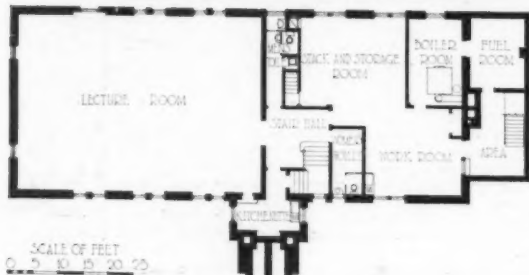
The librarian's office must be shut off from the rest of the building and be private. It is not necessary to place the office in a position in which the main room or any part of it shall be dependent upon it for supervision. An easterly exposure is generally not considered best for this room, as it is used almost entirely in the morning. It should contain ample space for a desk and table, a wash basin, coat closet, supply cupboard, and wall shelving. A workroom and a staff rest room will be added as the size of the staff warrants it. A lift from the unpacking room in the basement is a convenience, if feasible. If a room for the trustees to meet in is essential, the librarian's office may be made large enough for that purpose. Under ordinary circumstances it is not necessary to provide a trustees' room of large size or with sumptuous fittings, as

their meetings are not frequent enough to warrant devoting money and space to a special meeting place. A toilet room and a lavatory for the use of the librarian and her staff must be provided, even in the smallest building, either here or in the basement.

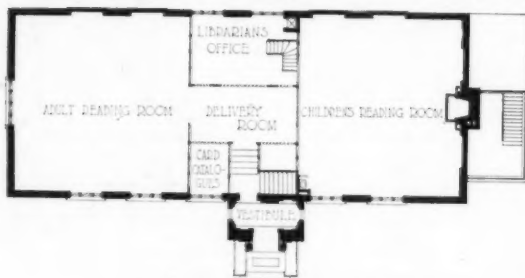
It is customary to build the basement at least $5\frac{1}{2}$ feet above the ground, and 10 feet in the clear. This will contain a hall connecting the main stairways with a side entrance; the auditorium and possibly class and club rooms adjoining; a storage room for books not in constant use; a workroom for unpacking books, sorting magazines, etc.; boiler room; fuel room; janitor's storage room for chairs, screens and double



General Exterior View



Basement Floor Plan



Ground Floor Plan

Mishawaka Library Building, Mishawaka, Ind.

A. F. Wickes, Architect

windows, and a janitor's workroom would be useful.

The basement must be absolutely dry, well lighted and readily heated. The janitor's entrance should be ample to provide additional entrance to the auditorium if it is placed here. All rooms should open into a hall, and entrance through other rooms should be avoided. It is well recognized that mildew is one of the most destructive enemies of books, and on this account provision for storing them in the basement is never planned for unless all traces of dampness are absent. In spite of this well known fact and in the face of everything that librarians could say, a donor has squandered a fortune in a small building recently and planned only a comparatively small space for books on the main floor where they would be accessible to the public and the librarian, but built an expensive iron stack, filling practically the entire basement in which the water seeped through the floor and which had inadequate windows to light the space.

Failure to utilize the basement is a defect, but some objection is made to putting either a children's room or an auditorium there. Unless it is an unusually light and airy room, provision should by no means be made for children there. Library auditoriums are used by the public for general community purposes, and on this account must be planned with easy access and special entrances with the use of the public in mind. Future auditoriums may give the architect more interest than those which have been created simply to utilize unassigned space, for they will have to be adapted to purposes demanding essentially different treatment, motion picture performances, plays, concerts and lectures. Subdivision into club room space may add to the problem.

While good light is especially important in reading rooms and at the loan desk, it should be secured without domes or skylights. A skylight renders the room beneath it so hot in summer that it has to be so shaded that it is useless as a distributor of light. It is a dust trap, and leaks both in summer showers and winter snows. A net glass area, exclusive of sash and muntins, equal to one-

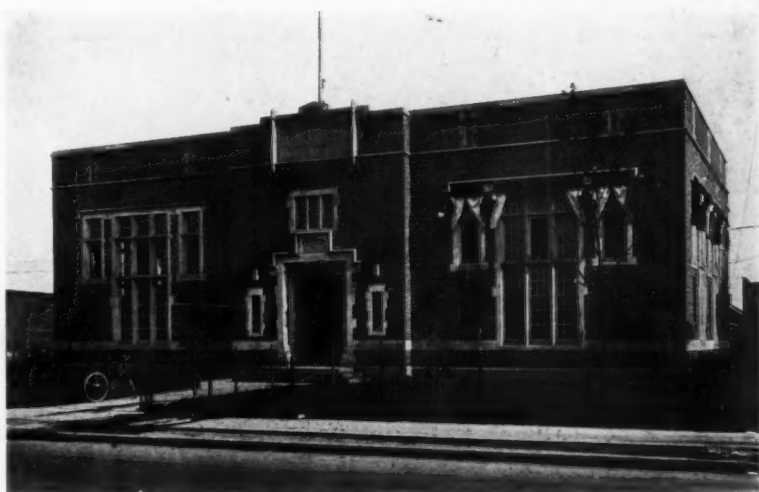
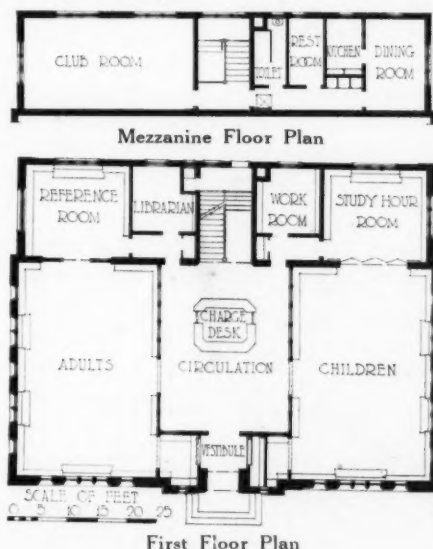
fifth the area of the room, works fairly well for rooms not over 24 feet deep nor less than 12 feet high.

Essential as proper ventilation is, it is most unusual. Systems of forced ventilation are out of the question in a small building or in any building in the open country. It becomes necessary to depend entirely upon flues, windows and fireplaces, which are desirable not only for ventilation but for heat and decoration. Windows should be easily opened and should slide up and down and not swing on hinges or operate with transom rods or chain fastenings.

Perhaps the saddest and indeed the most frequent failure of otherwise well planned buildings is the lack of shelving for the books. It is necessary to think of the building as serving practically without major alterations for 20 years. It is easy to estimate the growth of the book collection at the present rate for that time to get the maximum capacity

required. It is to be remembered, however, that there will be constant withdrawals as well as additions, and that it is the present policy of librarians to weed out dead books so rapidly that in many cases the collection remains fairly constant.

If it is planned to store the books most used around the walls of the reading rooms, to determine the shelving capacity, count on eight books to the running foot. One-third of each shelf should remain vacant to avoid constant shifting of books when new ones are added. The cases are usually built seven shelves high, having a book capacity



Henry R. Schoolcraft Branch Building, Detroit Public Library
Donaldson & Meier, Architects

of 56 volumes to the foot for wall shelving, and 112 volumes a foot for the double-faced cases. This is practically full capacity, as over-sized books must be taken into consideration. In small buildings all books should be placed on wall shelves. Stacks should not be installed in buildings containing book collections of less than 10,000 volumes. If it is necessary to install steel stacks and it is probable that the book collection will grow sufficiently to warrant a second tier of stacks, it is of the utmost importance that the foundations and supports of the first tier be strong enough to carry the load of the second tier, and also that ample space be left between the top shelves of the first tier and the ceiling to place the second tier. Many buildings have been built in which it was necessary to take out the first tiers and strengthen foundations and supports before the second tiers could be put in, and it is true, incredible though it seems, that several buildings have been built which allowed only 4 or 5 feet for the second tier. Theoretically, stacks should be used only for storage. If the public must have access to them it will be necessary to allow 4 to 5 feet in the clear between cases for proper access.



Interior, Montague Library, Rockford, Ill.



Montague Branch Library Building, Rockford, Ill.
Chester E. Wolfley, Architect

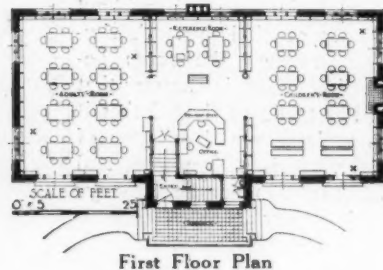


Interior, Boys' and Girls' House, Toronto Public Library

This special children's library is housed in a city house of no architectural pretension, but carefully arranged to meet its special purpose. Benches are used for seats and one room for very young readers has glass topped tables which display picture books at a glance

Enough has been said about the number of persons constituting the staff to show that this has an important bearing on the plan. In the smallest buildings there will undoubtedly be only one attendant. Experience seems to show that it is not wise to expect one attendant to administer a library with any degree of satisfaction in a building having a main floor area of more than 3,600 square feet, a total annual circulation of 50,000 volumes, and a book collection of 10,000 volumes. This will, however, depend to a large extent on the type of the neighborhood, its interest in reading, its law-abiding and civic spirit, and also whether borrowers are likely to come in in crowds within a brief period of time. Theft and mutilation of books are two evils which necessitate supervision, and it is as necessary to provide against such possibilities among adults as among children. In large libraries more resources and large staffs will make divisions in the work, and these will call for separate units in the plan.

This library was planned for Americanization work as well as its library functions. The well lighted assembly room, seating 200, is fitted with portable platform and a stereopticon and motion picture machine. Building, steel, concrete and brick. Trim, quarter-sawn oak; floor coverings, linoleum. Capacity, 9,000 volumes. Library completed during 1923; cost without equipment, \$27,663.36 or 30 cents per cubic foot.

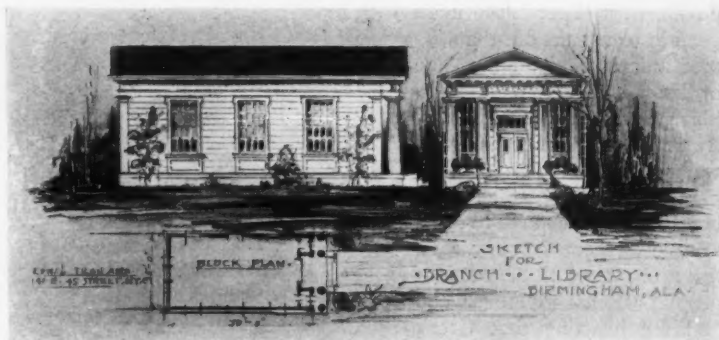


It is true that there probably never will be enough staff members to administer each part of the work satisfactorily, but a complete understanding as to the possible number available will help decidedly in making the building plan.

The style of architecture has to be left to the architect, although too often his choice is limited by funds and by the community and its architecture. If the building answers the purpose for which it was built, if its masses are grouped in an interesting and pleasing manner, if all its parts are well proportioned, not only with regard to themselves, but with regard to the surroundings of the building, and if the motifs are selected with good taste, then the complete structure will be a true expression of architecture. The public is beginning to recognize false notes in design. It resents use of stock plans. It welcomes individuality and the element of surprise when honestly executed.

Again, the neighborhood and funds available determine primarily the material of which the build-

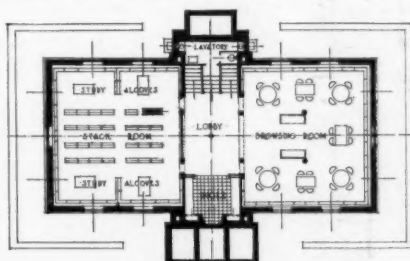
This building is to be developed in brick and limestone; interior walls plastered; finish of oak. Heating from a central plant. About 25,000 volumes will be provided for, and provision is made for several "study alcoves" for the convenience of faculty and students. The structure was planned to cost \$40,000 or 50 cents per cubic foot



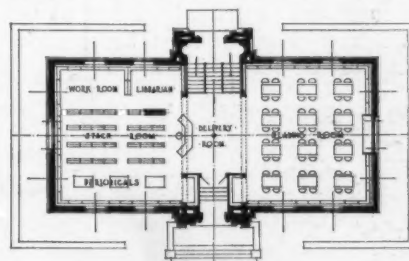
Design for Small Branch Library, Birmingham, Ala.

Edward L. Tilton, Architect

ing is to be built. In more or less congested districts of cities any slow-burning material is acceptable provided that it harmonizes with its surroundings, makes the right appeal to the passerby, and is adaptable to additions and expansion. In small cities and towns wood is acceptable, wherever fireproof construction is not required for dwelling houses. It is enduring enough to outlast its adaptability to its use. It lends itself readily to treatment producing dignity, refinement and charm. The fire hazards



Basement Floor Plan



First Floor Plan



Design for Small Library Building, Murphysboro, Tenn.

Edward L. Tilton, Architect

on libraries depend less upon general construction than on mechanical equipment. The ordinary small city or town library does not possess book treasures of sufficient value to warrant the expense of fire-proof construction. The usual building is low enough to obviate the danger of becoming a firetrap. For these reasons people are asking for wood and are insisting that Greek temples and Roman palaces executed in cheap brick and poorly mixed concrete, ornamented with ill-shaped, crudely painted iron, have no place in comparison with simple, charming buildings frankly and honestly built of wood.

And so we feel that there is enough of interest and challenge in planning a library building, even that for the smallest town. There are two standards by which the success of a library building as an acceptable example of architecture shall be judged, neither of which alone is sufficient. First, it must be practical, and fulfill the purpose for which it was designed—to make



Interior of West Branch Library Building,
Bridgeport, Conn.
Leonard Asheim, Architect

knowledge available through print, to teach the use of books and to foster a love of good reading; and second, it must furnish inspiration to the passerby and enhance the beauty of its surroundings. Certain people may regard as art a beautiful building which is poorly planned; but no matter how well it is planned, if it is an ugly, gloomy structure, no one would think of calling it an example of architecture. Scattered over the country are many well planned library buildings which are acceptable examples of architecture, and there is everywhere promise that the future will produce buildings more practical and more beautiful because of

the serious attention now given to libraries by masters of the art of building beautifully. And, too, there is hope of a more glorious day in the fact that librarians as well as architects and patrons are coming to have confidence in one another and to have respect for each other's ideals and purposes. It is not enough that a building *serves*. It must *inspire*.



From the librarian's desk the entire floor, with reference and two reading rooms, can be supervised. Dumbwaiter connects with stacks on the floor below. A high basement gives opportunity for an assembly room entered from the side street. Cost in 1921 was \$34,838, or 27 cents per cubic foot

Newfield Branch Library Building, Bridgeport, Conn.

Leonard Asheim, Architect

The Practice of Architecture: An Economic View

By HOWELL TAYLOR

TO the architect who realizes that his practice is a public trust, of which he is only the administrator, not only will come greater professional satisfaction but a larger measure of success. The acceptance of this point of view carries with it the development of a broadened perspective on his relationships with his assistants and the many commercial agencies of construction fields. It affords him better opportunities for establishing a much needed appreciation among laymen of the value of able professional service than are possible with a practitioner who has kept himself carefully insulated with more conservative beliefs.

This premise is not intended to take issue in any way with the fine old traditions of architecture—there is not a worth-while tradition which will conflict with the most liberal point of view. It does not depart from the premise which states that architecture is a fine art—the most far-reaching and practical of all the arts, with its argument carried into the parcel of human activity, but it may be construed as a premise which suggests a broader and more practical understanding of its machinery. Conversely, it challenges the administration of the trust and implies that the profession is 30 years behind the times in its appreciation of the principles of modern business economy and their indissoluble connection with the structure of architectural practice.

It is a plea for the sort of professional liberalism which comes from a scientific study of *all* factors entering into the practice of architecture—consideration not only of an architect's responsibility to sound construction, beautifully designed, but to the human elements involved as well. The day will soon pass when the architect can ignore so important a part of his trust as the latter, for in so doing he tacitly admits his disinterest in the tools he must use in executing his ideas. His mental conception of a building may be complete; he may have put it on paper himself—and therein lies the basis for recognizing that architecture is a fine art—but when execution is started, in even so simple a manufacturing operation as employing assistants for making drawings from which to build, an entirely new set of principles is involved and the architect steps across the line which separates artist from manufacturing executive. He no longer can consider himself in the same boat with the painters and sculptors unless he is willing to hang his designs on his office walls and forget that architects exist for the purpose of constructing buildings. In other words, he is confronted with problems of modern business economy, for he must concern himself with a scientific study of co-operative organization and make an analysis of every factor entering into the numerous and varied details of human welfare.

The term "modern business economy" is used advisedly, and does not suggest commercialism in any sense. It refers rather to the ideas which sound but liberal thinking of the business world has come to recognize through scientific study and analysis as necessary of acceptance for right social progress. Its principles have developed from the sort of thinking done by the liberal business man whom Edward A. Filene describes as "the opposite of the reactionary, the sort of business man who faces fresh problems with a fresh mind, who is more interested in creating a better order of things than in defending the existing order of things, who realizes that a private business is a public trust, and who has greater reverence for scientific method than for the traditions and majority opinion of his class." The platform of modern business economy is stated clearly by John D. Rockefeller, Jr.:

"In the light of the present, every thoughtful man must concede that the purpose of industry is quite as much the achievement of social well-being as the accumulation of wealth.

"The soundest industrial policy is that which has constantly in mind the welfare of employes as well as the making of profits, and which, when human considerations demand it, subordinates profits to welfare. Industrial relations are essentially human relations.

"It is therefore the duty of everyone entrusted with industrial leadership to do all in his power to improve the conditions under which men work and live."

It is generally admitted in business circles that the construction industry is the last great industry remaining untouched by the changes in modern economic thinking, and that its failure to progress lies at the door of bad leadership. The most cursory analysis of other industries, now freeing themselves from labor troubles, proves that they are those in which the principles of co-operative organization have been introduced. Their leaders have realized that back of every material element stands some human effort which must be reckoned with. This has not been done in construction fields, and in consequence the whole industry is full of unrest and dissatisfaction, unfair practice and low morale.

Leadership in the construction industry is the architect's natural function. From him should start the inspiration which makes a building a success or a failure. The fact that construction and engineering corporations are assuming so important a place in building in competition with the service an architect is supposedly able to render, would point unmistakably to some shortcoming in the architect. Either he has flagrantly misused his trust or he is hiding his light under a bushel. The fact remains, however, that he can never assume his place as

leader until he is willing to assume all its responsibilities and all that its responsibilities involve.

"Group provincialism" is the only term which characterizes the state of mind back of the situation. It is epitomized rather poignantly in the statement of a recent critic of these articles when he decries the use of a carefully developed plan of organization for an architect's office. After describing satirically a diagrammatic organization chart, he says, "All very businesslike and efficient, no doubt. Commercial, yes, but this is a commercial age. At least, so some blatantly insist and many accept. Personally we don't think it half as commercial as it seems to be. We believe that there is a general appreciation that architecture is one of the fine arts and not a business, and we believe that that appreciation is growing, and we believe that in course of time there will be a demand that the architect become an architect in fact instead of in name, and that he do his work himself, and that such things as chief designers and office managers and liaison assistants will have no more place in an architect's office than they have in a sculptor's or artist's studio. If an architect can't do his own designing and his own thinking, he should give up all pretense of being a member of a profession and go frankly into business where he belongs."*

The commercialism of modern life, which confronts us so insistently, offends any architect or artist or careful analyst as seriously as it offends our critic, but mere raillery does not help matters. It only confuses the issue and makes clear thinking more difficult. The question does not involve dragging the ends of architecture in the mire of fanatical reform, nor the despoiling of her noble traditions. It is one rather of expediency of method to accomplish those ends. Is it not possible for members of a profession which requires the education and breadth of viewpoint demanded in architecture to retain a set of ideals but change the method of practicing them if the times demand? It is unfortunate indeed that some of our ablest architects continue to resist the wheels of progress and sigh for classic and mediaeval conditions in no uncertain terms, little realizing that the world, which they want to influence and lead, is branding their aloofness as silly fogginess.

In assuming a more liberal point of view toward the business and economic aspects of the profession, the architect is not sacrificing his art. Architecture will weather the storms of whatever commercial influence is placed upon it. It cannot be otherwise. Its only limitations are those imposed by the men who make it their business to fulfill its demands. It can never be more nor less than one of the fine arts. If commercialism seems today to be asking for the greatest consideration in the machinery of its practice, it is the duty of architects to lend their best influence toward bringing about a return to more intellectual interests. Mere "stand-off-ishness" never

accomplishes anything, and the elements of professional snobbery that have characterized the profession are reacting against its members as nothing else can.

Another critic of modern thinking in architecture says: "Utilitarian ends are good in their place, but they must not in building be confused with the ends of architecture. In purely utilitarian building the idea of what we call practical utility governs. In architecture all utilities are controlled by the sense of beauty, as the architect conceives beauty."*

From what need does architecture spring if it is not that of practical utility? What started architecture if not the need of covering one's head and the protection of one's household gods? In taking issue with professional liberalism is it not well to note whether or not the issue is made with the fiber of public taste, its natural trend of human activity and the forces which promote it?

If we accept a definition of architecture which says that practical utility must be the first limiting factor in design, and that the task of the designer is to beautify what must exist, it is not unreasonable to look forward to a time in the development of economic and intellectual conditions when the demands of practical utility will have been so simplified that the idea of beauty will seem to dominate. Such a development can only be incidental, however, and the fact remains that architecture exists primarily by reason of an economic demand. It is the architect's duty to see that this demand is met with a crisp and living freshness of good design which, at least in the centuries to follow, will mark us as students rather than craftsmen whose progress did not consist merely in evolution out of one set of traditions into another. That the evolutionary traditional trend may not always be a good one in design is seen in the Victorian period of the past century—a development, for America at least, which has meant an encumbrance of architectural atrocities, whose influence is likely to take many generations to overcome.

Architects are making rapid progress in the wise administration of the design and construction elements of their trust, however. Most critics agree that the quality of design is improving. The individuality and carefully studied quality of much of the recent work are presented in every issue of the architectural press, and the widespread interest in better design is giving able practitioners desirable advantages, but the percentage of architect-designed-and-supervised buildings is too small. There must be something fundamentally wrong with a profession which cannot meet the competition offered any more successfully than architects are meeting it, for it is assumed that the architect is the logical individual under whose direction the larger percentage of buildings should be constructed. Something has happened in the last century or two which has caused the public to push the

*Egerton Swartwout in *The American Architect*.

*Prof. Charles H. Moore in *The Architectural Record*.

architect into a dark and secluded corner from which he can be gingerly removed only on special occasions. In general he has not the confidence of the average user of his service because he has not kept pace with advancing thought, thus enabling himself to hold his position as a leader in the community. He has let his concept of professional duty dwell too largely on its artistic elements, and has attempted to maintain a mediæval aspect of the profession. He has not recognized its economic significance nor been willing to share in the labor and thought required to establish conditions which will relieve the serious situation in the construction field.

Failure to get into the band wagon of modern thinking also reflects itself in his method of selling professional service as well. In the business world economic analysis proved several years ago the futility of getting business the way architects are now attempting to get it, with the result that almost incredible commercial expansion during the last 25 years has taken place. Architects are helping to "prostitute the ethics of the profession by using the back door method of getting commissions," namely, personal friendships, fee-cutting, wire-pulling, etc. A more direct selling policy on a basis of profit-to-client will stabilize the demand for architectural service.

The trouble is deep-seated. It is quite easy to see that only gradual stagnation over a long period of time would make possible a state of thought which so consistently rejects even the most conservative liberalism. Many critics will declare that it is not so, and it is to be expected that this would be the case, for architects as a class have little intimate contact with activities outside the construction field. Their shortcomings are catered to by manufacturers because in general their relation to the manufacturers is that of buyer rather than seller. Architects do not have occasion to rub elbows with the give-and-take business world, and therefore never have been compelled to subject themselves to the rigorous self-examination which business men have to make in order to keep their heads above water. Few architects have had any business experience or training. They have grown up in the offices of other architects, and it is not unreasonable to find that there is a woeful lack of appreciation of the elements of business economy on this account. They have been slowly set aside—their influence has been less felt in broader community life, and those who have been more alert to economic needs have stepped in, while the construction industry still retains its cut-throat practices and mediæval thinking.

There are notable exceptions, of course, and it is a pleasure to find a growing interest and appreciation in the executive nature of the architect's status. Neither delving into promotional activity nor the commercializing of design—both of which tendencies are likely to lead to the building up of larger office staffs—can be confused, however, with the

architect's responsibility to give sincere attention to the economic elements of his practice.

With the unusual development of scientific and engineering knowledge during the last 30 years the business world has begun to realize the advantages of coöperative effort. Competitors stopped regarding each other as enemies and began to see that the other fellow's smart methods might be valuable. It is the spirit of the modern business world to accept and make practical use of results obtained by thoughtful men who have an intimate knowledge of the subject in question. Such a system makes for specialization, of course, but it also establishes a greater fund of accurate knowledge and brings about more consistent growth. Business men have realized that what helps one, helps all. If a group of merchants in a small city get together to advertise the community as a good place to buy, it has been proved by test that the percentage increase of sales for all will be the same, although the differences in volume will vary.

Since the great ages of design, building practice has been reduced to a science, and modern methods of construction have had to be accepted in order to practice architecture today. We are doing perhaps two thousand times as much building in a year as was done less than a century ago, and our whole problem of living is so much more complex that comparisons with any preceding periods or conditions are impossible. Today the machinery of building practice has grown to enormous proportions. Its functions are more complex than those of the most extensive manufacturing business, but they are so loosely connected that definite forms of organization are impossible. This is undoubtedly one of the principal reasons why the construction industry has been so tardy in accepting a modern economic point of view—and why so few leaders have been developed. Architects have kept themselves uninformed on the methods and value of modern organization by reason of their beliefs that nothing "commercial" must be allowed to creep into the profession. On account of its very looseness, however, does the industry need most carefully trained executives at its head—men who have a concept of architecture and the labor which produces it which lets them recognize that their activities can only have a survival value when they make a worthwhile contribution to civilization or to the advancement of human thinking.

What is the remedy? Where can an architect begin if he would convince himself of the value of coöperative organization and study the application of its principles? Its point of view is not a cloak that can be put on and taken off as occasion demands. It must come as mental conviction. Charles M. Schwab says: "Men are keen judges of their employers. You cannot make workmen think you are interested in them unless you really are. They realize at once whether your interest is real or assumed. The only man who gets the loyalty of

his employes is he who deals in fairness with them."

It is impossible to say what steps will be logical in applying the principles of coöperative organization to the construction industry. To do so would be like asking a youngster in the fifth grade to solve a problem in calculus. He must learn the fundamentals of mathematics before he can go to more complex problems.

The coöperation testing laboratory for the architect is undoubtedly to be found in his own office, where the value of coöperation principles must be recognized before he can influence the trades and larger units outside. Its first step is the assumption of a policy of confidence and co-partnership in joint endeavor toward any member of the staff, however insignificant he may be. In describing the methods of Andrew Carnegie, Mr. Schwab has again struck a keynote:

"Mr. Carnegie was always one to take you by the hand and encourage and approve. It was the rarest thing in the world to hear him criticize the actions of others, especially in a business sense. I wonder if you reflect how you yourselves—how every other man—responds with his best efforts under such conditions? In my wide association in life, meeting with many and great men in various parts of the world, I have yet to find the man, however great or exalted his station, who did not do better work and put forth greater effort under a spirit of approval than he would ever do under a spirit of criticism. Now Mr. Carnegie understood this great thing early in life, and it was this fine philosophy, which he practiced always, that made him a great commercial success."

To any intelligent man paternalism of any sort by his employer is as irksome as complete disinterest. Men want sincere encouragement. They want to know that their efforts are an important part of the organization in which they work, and every man, no matter how unimportant may be his duties, can be made to feel the necessity of his service with a little care on the part of his superior. It should never be forgotten that every job worth hiring a man to do is worth teaching him how to do well.

Destructive criticism stifles initiative as no other influence can. I have seen the morale of an office sink to the lowest degree under dictatorial, unreasonable management. If men are subjected to constant catechization and criticism, which is an affront to their intelligence, on the one hand, and are expected to exercise independent judgment and responsibility on the other, as are the majority of experienced draftsmen, superintendents, and contractors, what is to be expected but trouble? A good average man only wants a chance to work harmoniously with his neighbors.

Why drive draftsmen into business for themselves? They only offer additional competition to architects already established. Why not recognize the fact that the average good man can be developed into an asset to any practice? Under present con-

ditions the larger organization, which can handle all four departments of architectural practice, can turn out far better work. Each man has his potential group of clients, and he should be encouraged in establishing a contact with them for his employer.

An employer or executive should not begrudge credit when a piece of work is well done. The man will thrive under encouragement and deserved praise. I have sat in conference with a principal of a firm and a client, and have heard the principal say that he designed this or that feature of the work when he knew I had done it, and perhaps he had never seen the design in question until ten minutes before the conference. I only ask that he say "we—the office—have done it." The "we" spirit in an office is a wonderful thing. If it gets into organization it can be fostered and introduced into construction groups. There is nothing like it to bring in results. If a man feels that he is a part of a splendid organization which is accomplishing big things and he is encouraged, the petty annoyances are going to take a much less important place in his mind, providing he is fairly treated in the matter of wages. It breeds initiative and good work. It makes boosters of the men instead of malcontents.

It is quite easy to watch the method of a successful construction superintendent. He may not have studied the psychology of the individual workman's mind, but he knows there is nothing like encouragement—a spirit of "we'll-work-this-out-together" in every phase of the work, to keep things running smoothly. It too often happens that the arrival of the architect on the job is the signal for disruption in the machinery of coordinated effort.

This is a transitional period, the end of which we cannot see. Modern public demands may not be what the architect likes; he may prefer another sort of world, but every insistent public demand is incidental to some important development. Idealists find it hard to admit that our twentieth century life seems to have commercialism as its fundamental principle, but ignoring it will merely complicate its problems which must be solved before a return is made to conditions where intellectual interests are in the ascendancy. Not a few careful thinkers believe that commercialism is beginning to drive itself to the wall and is being defeated at its own game, and men are finding that "the one route to happiness through property or government is over the broad and open highway of service." (W. G. Sibley.)

As in every other great activity, modern methods of transportation and the far-reaching scientific discoveries of the past 50 years have brought about radical changes in architecture, the adjustments to which are not yet complete. As members of a profession which has idealism enough to retain its deep appreciation of aesthetics, it is to be hoped that architects, at the same time, have the vision to see the scientific necessity of turning their attention to modern economic thinking in the highest sense in order to help ride out the storms of our period.

Interiors of Tudor Inspiration

THE HOUSE OF ROBERT LAW, JR., ESQ., PORTCHESTER, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

IN planning this large country house it was necessary to adapt the plan of a house such as might have been built in sixteenth or seventeenth century England to wholly different conditions. Interesting as it is, the climate of our Atlantic seaboard states renders the planning of a house in quadrangle fashion rarely practicable, and use must generally be made of a plan which is more compact. Matters of design call for adaptation rather than compromise, and the Tudor character which is so strong in this house is the result of consistent use of traditional motifs and of wise use of considerable old material which the architect was able to secure.

In the entrance hall there is indicated the architectural character of the house as a whole. Here the floors are of Italian convent siena marble, and the walls are faced with travertine which has been given a honed finish. The heavy timbers of the ceiling and the wood of doors, paneling, stairway and organ console are of English oak which has been cut more than 70 years, and the carving has been done by local craftsmen. The design of the carving suggests what would be found in any old English house built during the late Tudor or the early Jacobean period, and shows a mingling of Gothic and Renaissance motifs. One

interesting detail of this stately hall is the arrangement of the great organ with its console standing upon the floor of the hall, while its pipes are placed high on the stair walls. Another detail of interest is the use of stained and painted glass in certain windows of the large group upon the stair landing.

For the living room rough textured plaster, in which the color was mixed, has been used for the walls and for the ceiling between the timbers which are original seventeenth century material brought from England. An old Norman chimneypiece of stone surrounds the fireplace, the hearth being raised a few inches above the floor of the room. The jambs of the windows and doors are of stone, and the lunettes above certain doors are of modeled plaster. Much of the furniture in this room is antique, and use is also made of careful reproductions. For draperies there was imported from Eng-

land a crewel embroidery, the ground being cream and the colors old blue, old red and gray.

Throughout the greater part of the house the jambs of the windows and many of the jambs of doors are of a stone which is of cream color with veining of brown. This stone has been aged or toned by sand-blasting after being set in place. The windows are given added character and dignity by being fitted with metal casements, and the sills are in many instances deeply splayed to make the most of the wall's thickness. Exterior doors are of oak, heavily paneled without and within, and the stiles between the panels are studded with iron nails.

In the study use has been made of more English oak, here in the forms of antique paneling for lining the walls and of an old carved chimneypiece. A frieze of ivory-toned plaster extends about the room above the paneled walls, and the coved ceiling, which is also of plaster, is modeled in an old English all-over pattern. Bookshelves are recessed within certain parts of the paneled walls, and other panels are arranged to form secret doors, one leading into a "trophy room" and the other into a "midnight kitchenette and supper room." The floors of the study are of East Indian teak planks, from 8 to 12 inches in width, of a



Fireplace in Library
House of Robert Law, Jr., Portchester

warm light brown and pegged down. Draperies are of an old English tapestry in a verdure pattern, and most of the furniture, in material as well as character, is in agreement with the interior architecture.

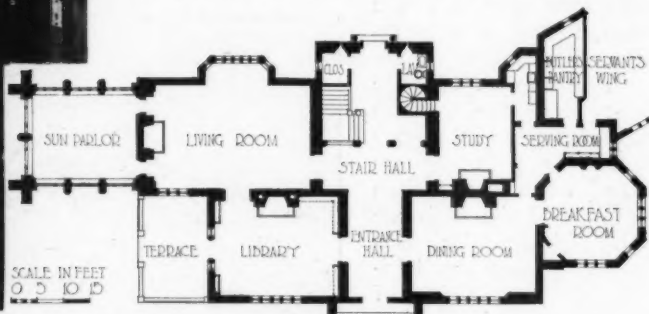
The dining room is arranged and furnished in the style of the English Renaissance. The walls are paneled with American walnut which has been stained and waxed to a deep and lustrous finish, and against this paneling of walnut are placed carvings of pearwood, deeply undercut after the manner associated with the name of Grinling Gibbon. Around the fireplace is a heavy bolection moulding of marble. The floor of this room is of the convent siena marble which is used in several other rooms of the house, and the ceiling is of plaster. With this rich English Renaissance setting go furnishings and accessories which aid in carrying out the style. The furniture is entirely reproductions of antique pieces, and



Detail of Study

the coverings for the chairs and the draperies at doors and windows are of an English brocade of soft red and silvery gray. The side lights and the chandelier are of crystal.

In the breakfast room there is sounded a note quite different from that in which the remainder of the lower floor of the house is set. This is a hexagonal, tower room. Floors are of travertine, and walls and ceiling are covered with canvas upon which has been painted a scene continued around the room, showing a marsh or swamp with much foliage and many bright colored birds; morning light is suggested by rosy colors near the bottom, faint blue above, and bright blue on the ceiling, the entire decoration being much softened and toned. Draperies at the windows are of gray-green taffeta;



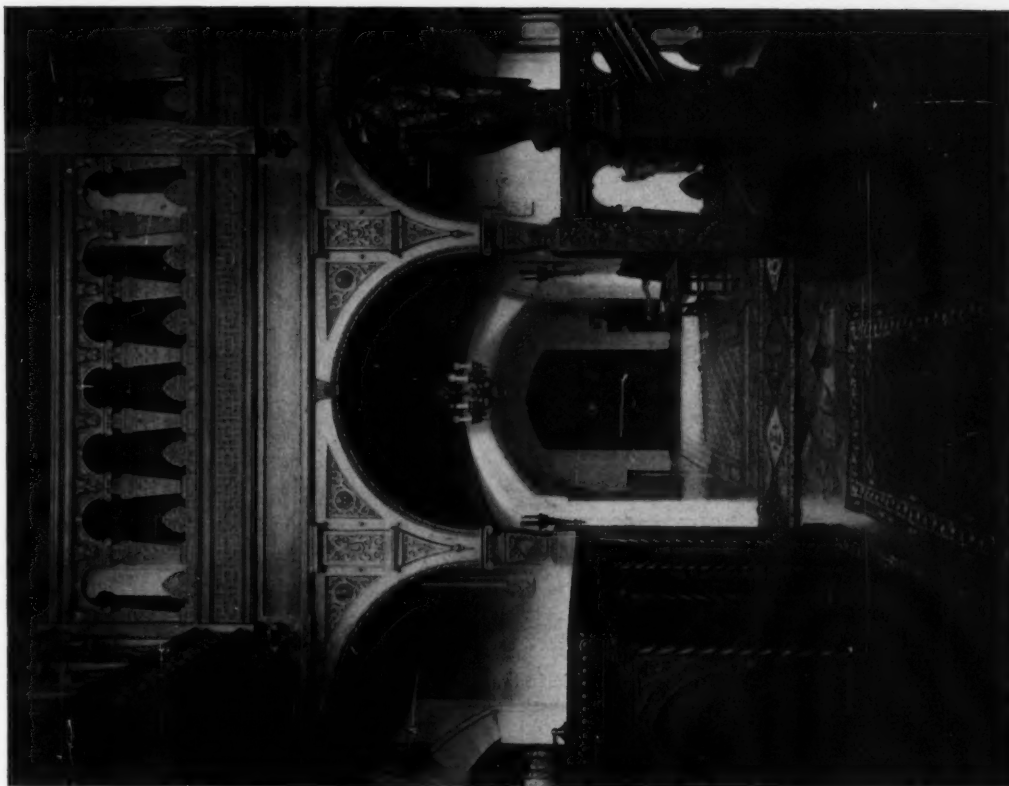
Principal Portions of First Floor Plan



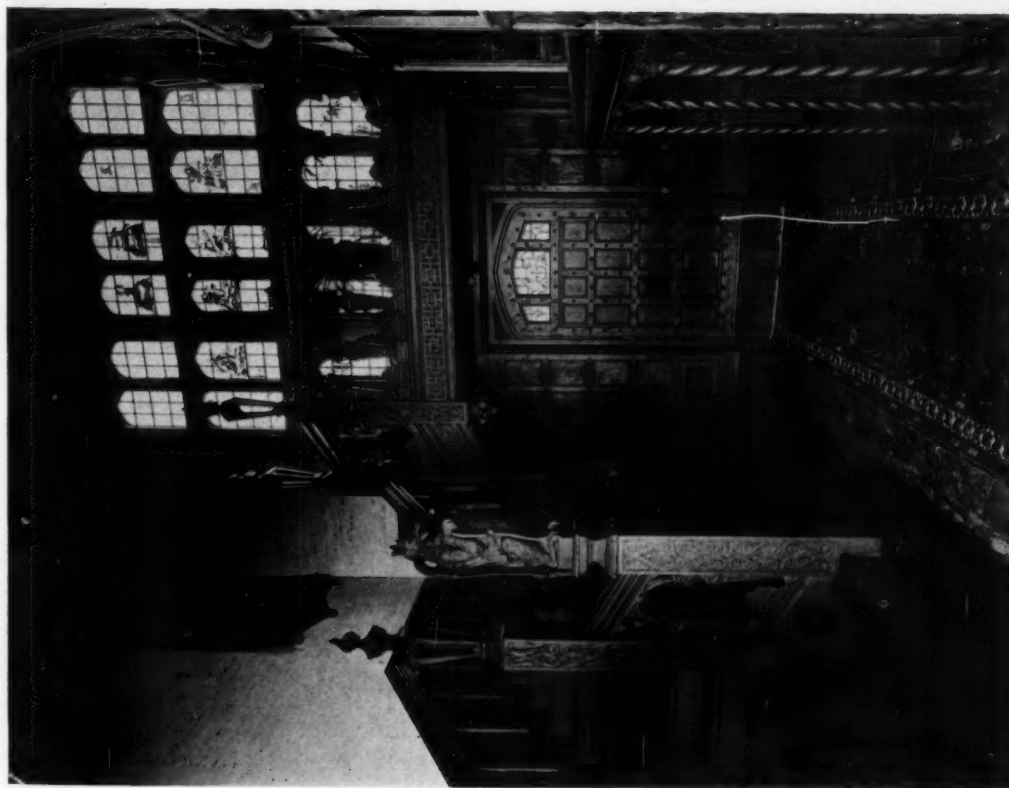
Fireplace End of Study

House of Robert Law, Jr., Portchester, N. Y.

Photos, Paul J. Weber



STAIR HALL SHOWING ORGAN CONSOLE ON LEFT
HOUSE OF ROBERT LAW, JR., PORTCHESTER, N. Y.
DWIGHT JAMES BAUM, ARCHITECT



STAIR HALL LOOKING TOWARD ENTRANCE

Photos, John Wallace Gillies

furniture is colored old ivory with seats of black patent leather, and tops of black glass are laid upon the breakfast table and several small serving tables. The hanging candelabrum or chandelier is of crystal with stem and arms of amber and prisms of clear glass.

A long vista which extends through several of the rooms of the main floor ends in the sun room. Here the walls and the vaulted ceiling are of a rough textured, warm colored plaster, while the floors are of orange brown tile made with a slight glaze. The window trim is of carved oak, and the sashes are glazed with slightly colored Belgian glass and decorated with panels or rondelles of stained or painted glass such as are used in several of the other rooms. Lighting fixtures, which lend character to any room, are here of iron cut out *en silhouette*. The most important single detail of the sun room is a wall fountain with which is incorporated a niche in the wall. The frame of the niche and the edging of the basin of the fountain are of a



Wall Fountain in Sun Room

deep yellow textured stone, and the inner surface of the niche is lined with a glass mosaic in silver and blue. The figure, which is part of the decoration of the wall fountain, is of bronze. Doors into the living room are filled with glass ranging in color from the palest amber through various shades of brown to dark brown. The carrying out of the decorations and furnishings formed part of the architect's duties and was done under the supervision of Miss Eleanor Mary Wilkie, who is associated with Mr. Baum's organization. It was she who painted the wall decoration for the octagonal breakfast room.

The decorations and furnishings cannot be considered complete, however, without the installation of the rugs which are now being made in the Orient. The house has been recently finished and attention is now being given to the development of gardens and the landscape setting. Upon the completion of this work views of the exterior which, like the interior is of Tudor character, will be available.



Living Room Door to Hall



Dining Room Door to Hall

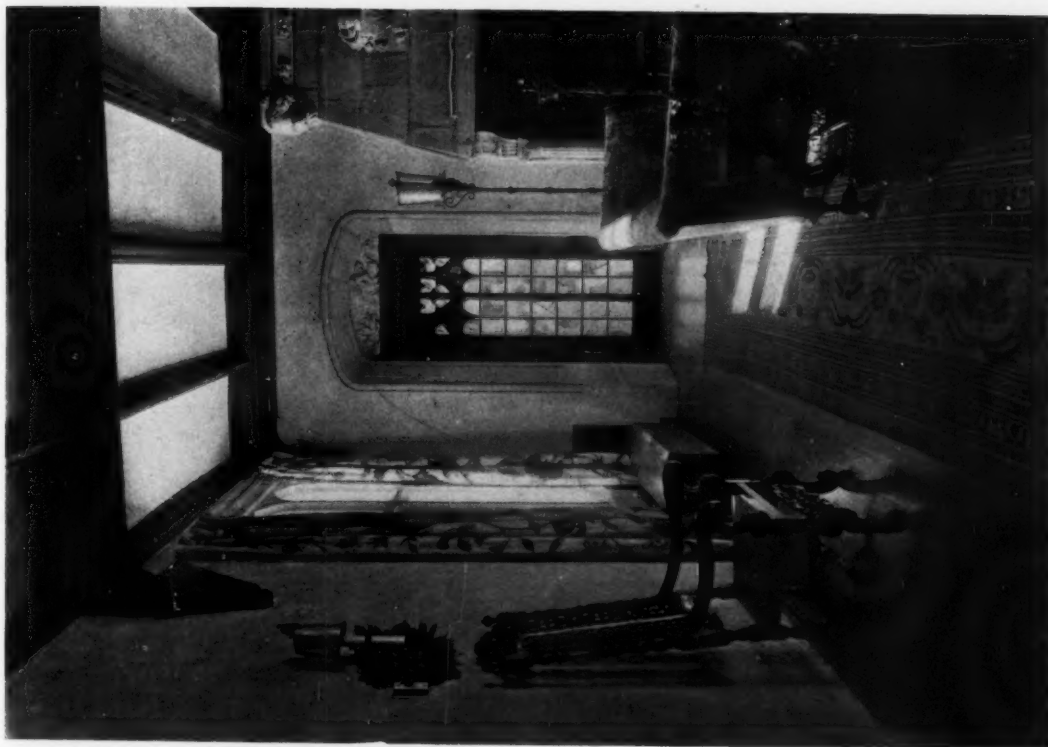
House of Robert Law, Jr., Portchester, N. Y.



DETAIL OF STAIR HALL LOOKING TOWARD STUDY
HOUSE OF ROBERT LAW, JR., ESQ., PORTCHESTER, N. Y.
DWIGHT JAMES BAUM, ARCHITECT

Photos, Paul J. Weber

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LIVING ROOM TOWARD SUN ROOM



BAY IN LIVING ROOM

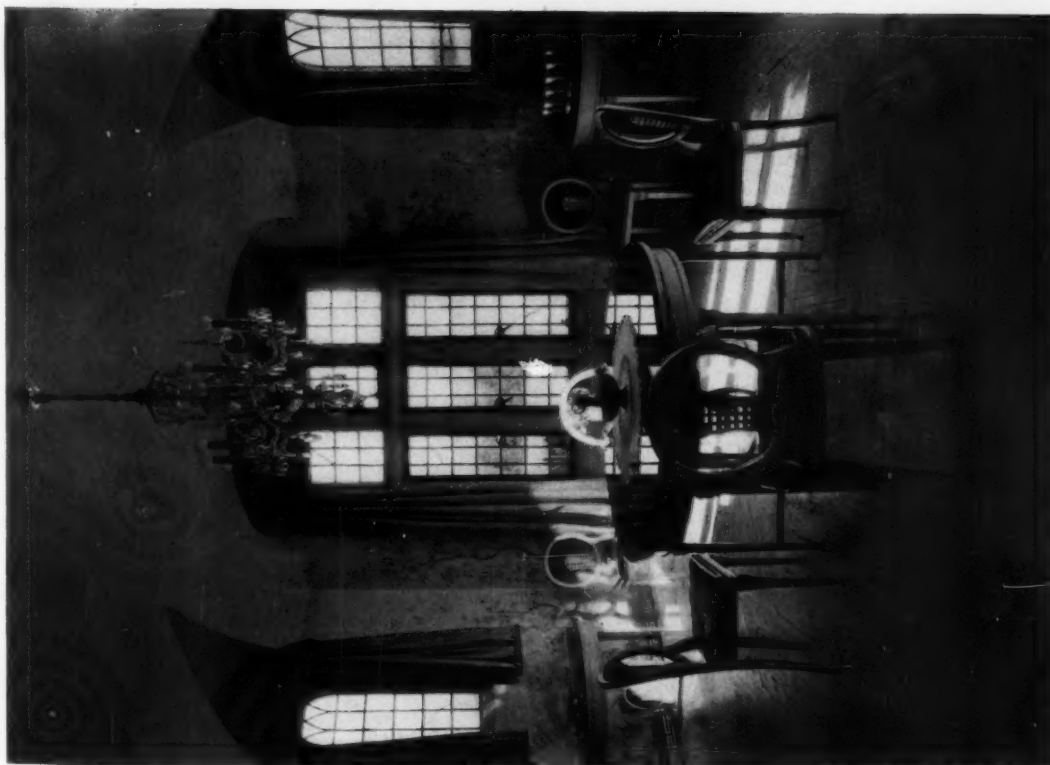
HOUSE OF ROBERT LAW, JR., ESQ., PORTCHESTER, N. Y.
DWIGHT JAMES BAUM, ARCHITECT

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DETAIL OF BREAKFAST ROOM

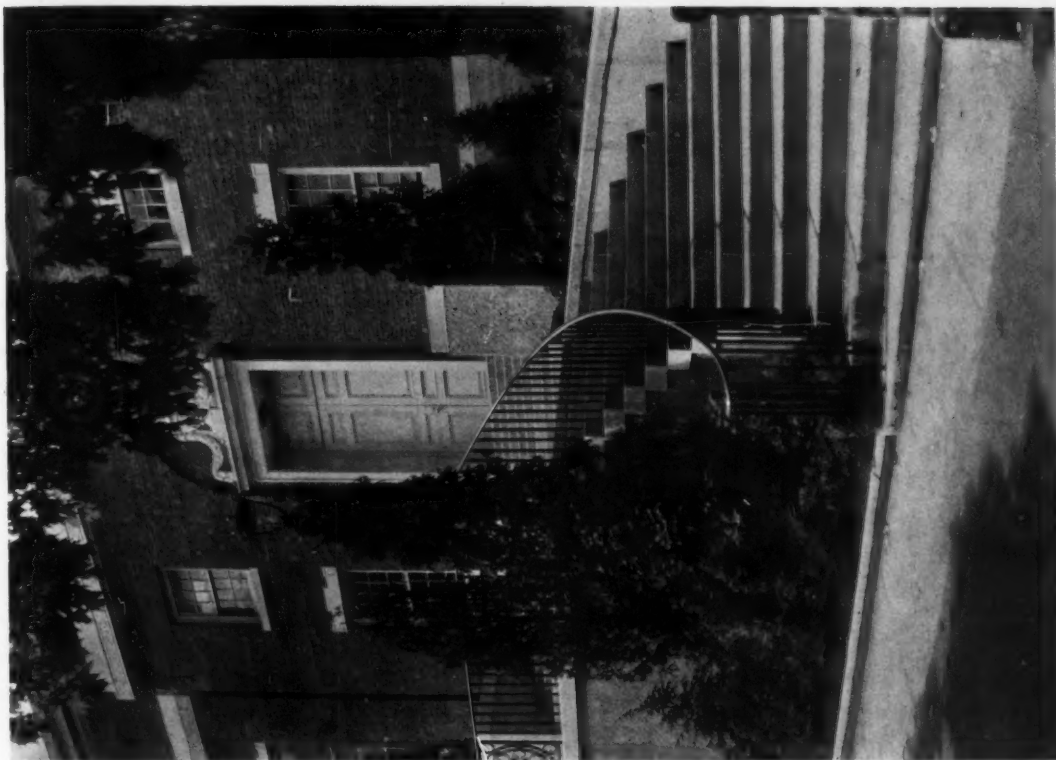


BREAKFAST ROOM FROM DOORWAY

HOUSE OF ROBERT LAW, JR., ESQ., PORTCHESTER, N. Y.
DWIGHT JAMES BAUM, ARCHITECT

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ENTRANCE TO CLUB ROOM WING

✓ GEORGE MARSTON WHITIN GYMNASIUM, WHITINSVILLE, MASS.

J. D. LELAND & COMPANY, ARCHITECTS

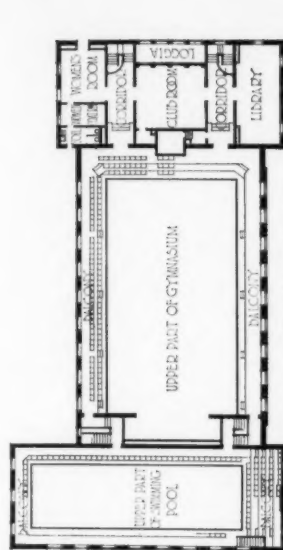


ENTRANCE TO SWIMMING POOL WING

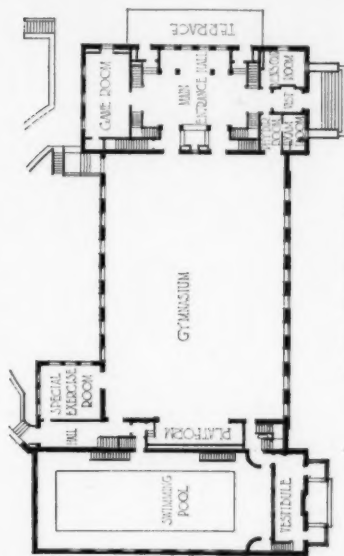
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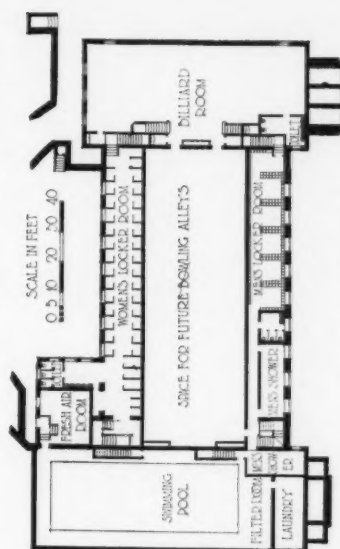
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SECOND FLOOR PLAN



FIRST FLOOR PLAN



BASEMENT FLOOR PLAN



TERRACE SIDE OF CLUB ROOM WING

GEORGE MARSTON WHITIN GYMNASIUM, WHITINSVILLE, MASS.

J. D. LELAND & COMPANY, ARCHITECTS

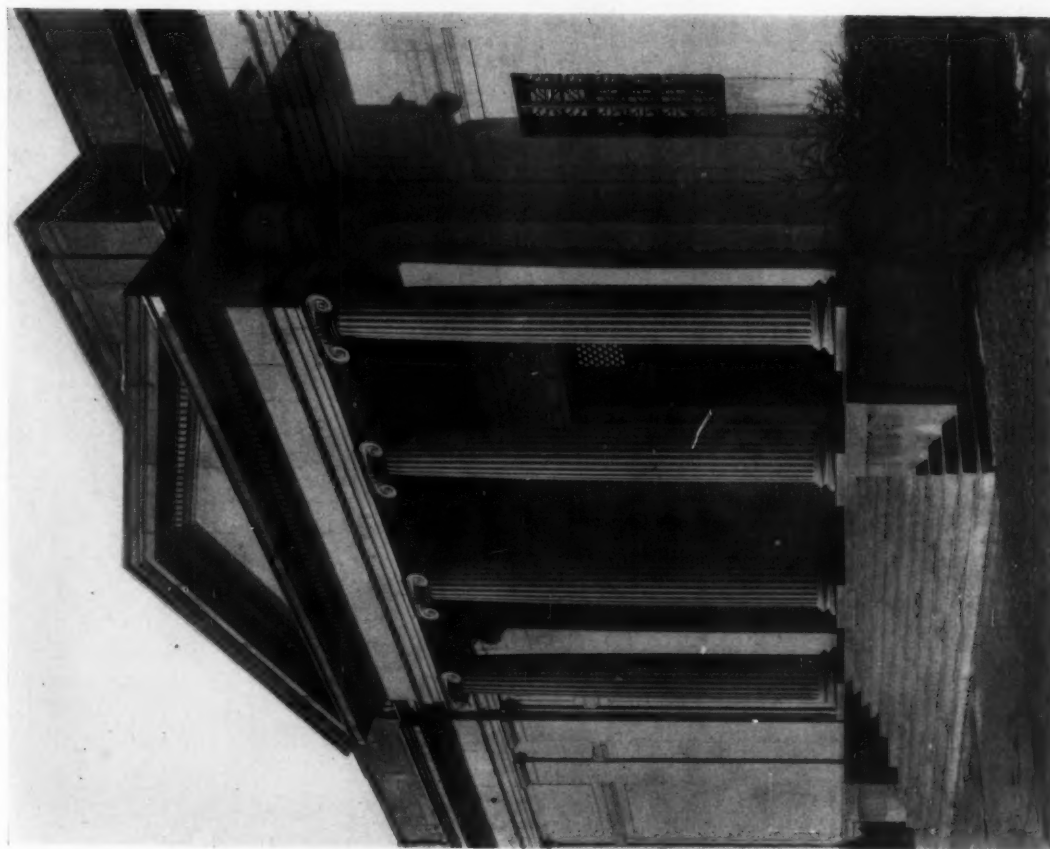
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✓ THE CONFEDERATE MEMORIAL INSTITUTE, RICHMOND
BISSELL & SINKLER, ARCHITECTS

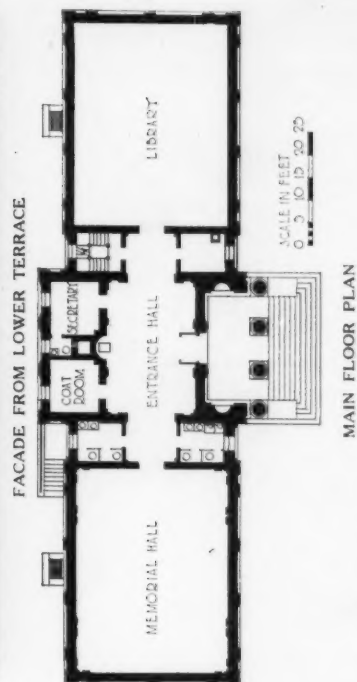
Photos, Tebbes & Kuehl, Inc.

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DETAIL OF PORTICO

THE CONFEDERATE MEMORIAL INSTITUTE, RICHMOND
BISSELL & SINKLER, ARCHITECTS



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✓ Small American Museum Buildings

By JOHN H. SCARFF

RECENT study of American art museum buildings, that included a visit to nine of the principal small art museums of our Eastern cities, brought to the author's attention a number of details that are of vital importance to the economical and efficient management of a modern museum building.

The scope and usefulness of the museum building are rapidly widening. The old idea that an art museum is a storage place for objects of art is giving way to the broader conception of the art museum as an active and vital force in stimulating the cultural interests of the community. The modern gallery is not only a place where objects of enduring value can be cared for and handed down to posterity, but also a place where the old as well as the new can be displayed to the greatest advantage; a place properly arranged for transacting the various forms of business connected with its activities; where visiting exhibits, often of very large size, can be effectively handled and protected, and a building designed to reach and interest the various groups and classes, including both children and adults, that may seek simply shelter from the rain, study for professional activities or, most important of all, pleasure. Then too there are the school, lectures, and all kinds of gatherings, and perhaps musicales where large audiences must be taken care of. There

are the "docent" service and a modern library where books, photographs and slides can be properly displayed and studied. Not only must there be provided facilities for displaying each object of a loan or permanent exhibition, but each of the different activities must be understood in advance and provided for so that the whole building may represent a successful solution of the complicated problem presented.

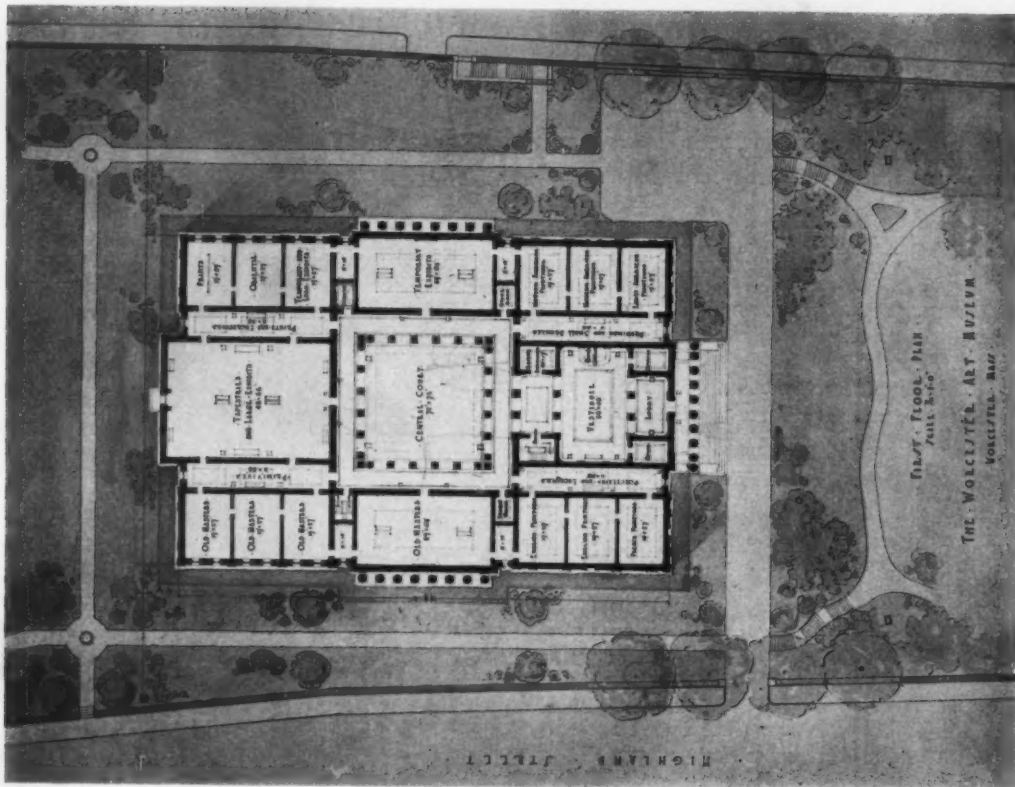
It is recognized that each museum, according to its aims, must be a problem in itself, but a few difficulties common to all will be noted, and from the general consensus of opinion a solution suggested that applies to all but the very large.

Entrance facilities for the ordinary visitor; for those who come to see an officer of administration; for the delivery of packages; for the delivery of objects; for service and employees, and for the auditorium and the school must be provided, so that each part of the building is as independent as possible of the others, and can be reached simply and directly. Separate entrances for all are obviously both impossible and undesirable, and for reasons of economical control it is necessary to concentrate. All visitors can be brought to one entrance, but if the architectural effect requires a long series of steps and terraces, a covered drive approach should be provided in connection. Then from a common ves-



Design for the Worcester Art Museum, Worcester, Mass.

John H. Scarff, Architect



tibule, where should be ample coat rooms, the catalog room and postal booths, telephones, etc. Before entering the museum proper it should be possible to reach the administration offices and also the lecture room, which should share the coat room facilities, but otherwise be independent of the museum. A large auditorium and a school in the same building would perhaps need separate entrances.

For service and the reception of objects use could be made of the same entrance, which should be next the superintendent's office. For the reception of objects there are a few arrangements that are absolutely essential. The receiving floor should be from 2 feet, 6 inches to 3 feet above the wagon drive and at one level. For objects, the opening, preferably covered, should be at least 5 feet wide by 10 feet high, and for ordinary service a smaller door could be arranged within the larger, which in turn would be better if designed to slide. The receiving room, which should be large and light, should connect directly with the workshops, freight elevator, repair shops and either a storeroom or a room in which objects could be put directly upon unpacking, while awaiting installation. The box storage room should be large enough to arrange boxes so that one can be had without moving others, and if it does not connect directly with the receiving room it should connect by means of the elevator. It needs no light, but if the ceiling is low the opening must be wide enough to take boxes of large dimensions. It is desirable also that the elevator connect not only with the photographic room under the roof, but also with the attic space.

About gallery floors and walls there is a wide difference of opinion. Where marble or terrazzo floors are used, they are usually too light in color; when wood is used in combination with marble, the floors are difficult to maintain. They are also more expensive to care for, and it sometimes necessitates the closing of a room for a day from time to time. In the later galleries, cork carpet over cement is being tried. General opinion favors wood walls for picture galleries as giving more freedom of arrangement and doing away with the unsightly hanging devices. The importance of keeping the picture level of walls free from disfiguring and inconvenient details of apparatus is not always realized. Thermostats, signal boxes, electric push-buttons, large switch boxes, and even ventilating grilles were observed on those portions of walls designed for pictures.

Too many doors are usually provided, and unless some special architectural effect is desired, the simpler the treatment of the openings the better. Other things being equal, they should be in the corners of the rooms and not in the centers; in the side-lighted galleries, next the windows. Arrangement in a line makes supervision of the rooms easier and also allows pleasing vistas. The only artificial light giving anything like satisfaction for galleries is the white light above a diffusing glass. Radiators, which

are usually supplied in too great numbers, greatly disfigure the galleries, and the improvement obtained by their concealment certainly justifies the expense.

Ventilation can be arranged in connection with the heating, and much is gained by using a flexible system with independent units. It is also economical to re-circulate the air at times when the building is not in constant use. It is absolutely essential to provide special ventilation for the attic spaces, where excessive heat causes not only leaks in the roofs but discomfort in the rooms below. An arrangement with exhaust ventilation from the galleries through the attic space offers a suggestion. The attic space itself needs special attention. Apart from the important and complicated question of light, which is influenced by the depth of the space, for reasons of easy maintenance there should be at least 5 feet between the ceiling glass and the roof trusses.

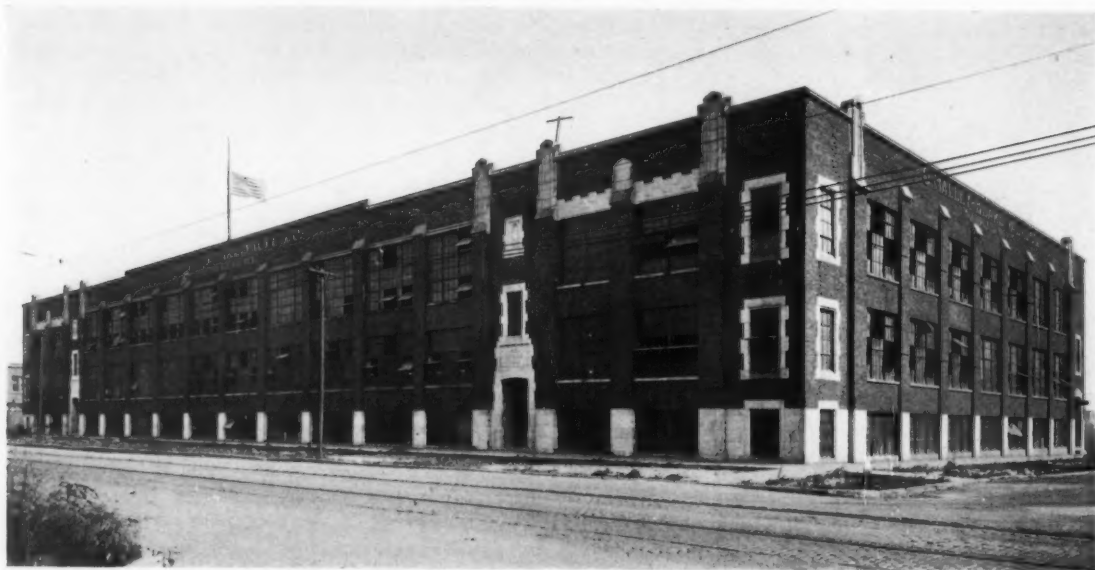
The type of plan adopted has always been formal and symmetrical, with galleries high and bare, where the pictures looked as if they were in storage. A plea is made for a more flexible type building, with its exterior more intimately related to the needs of the interior, and where the claims of architectural magnificence do not overshadow those of the objects displayed. A desirable arrangement of plan, and one possible in the smaller galleries, is one that allows the visitor, after passing the vestibule entrance to offices and services, to go at once to some central point from which he can go to any room without passing through many others. In this way his attention is not diverted, nor is he fatigued by seeing too much.

It is the author's opinion that museum directors demand too much light, that there are too few galleries with side light, and that more side lighting for modern pictures would encourage the decorative treatment that we admire so much in the older work. If the old pictures could be hung in relation to other objects of art of the same period, in something approximating their original intended position and light, it would make a stronger appeal to the average visitor who could in this way have a better understanding of the relation between art and life. Also the usual tendency is to make the galleries too large, where each picture, if it cannot compete with its long line of neighbors, is lost, and where there is absolutely no opportunity to give a picture deserving it, individual treatment.

The accompanying designs are a part of a report of recommendation to the Worcester Art Museum, Worcester, Massachusetts, for which the investigation was undertaken. The idea is that this building should house a small but choice collection, and that it would always be used in connection with the present building, which is near by. The present building in this scheme will continue to accommodate the school and the school equipment, casts and reference documents, and this will obviate in the new building the many unfortunate compromises of installation that are necessary in so many museums.

O'Malley-Beare Valve Company Factory, Chicago

RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS

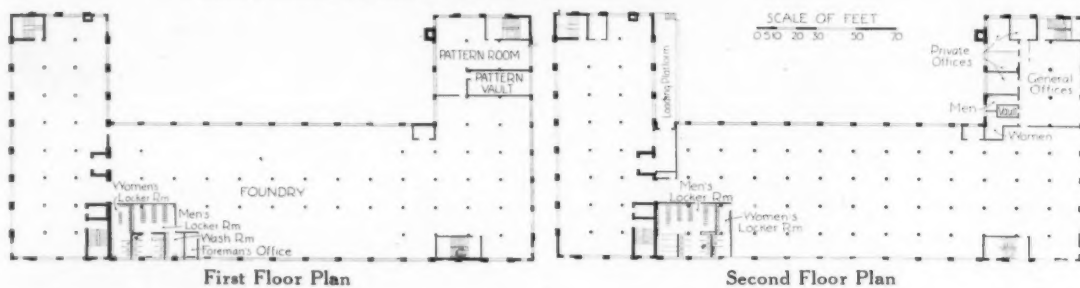


GENERAL EXTERIOR VIEW



Foundry, Center Portion of Second Floor

THIS building has been built in two sections, the unit at the extreme left being the original structure. The exterior walls are of brick and the floors are of reinforced concrete construction, beam and girder type with concrete columns. The typical bay is 14 x 16, the girders running the long way of the building. The center part of the second floor is a foundry with a modified scissors type of concrete truss supporting a monitor roof with continuous sash. This construction has been approved by the Illinois Factory Inspector for foundries without the use of hoods or flues, the gases finding their exit through the enormous monitors.



Height of Buildings in Boston

By JOHN R. NICHOLS, Consulting Engineer

IN the race between mounting costs of labor and materials on one hand, and the art of building construction on the other, architects and engineers must look sharply to see that no avenue escapes them for reaching any means of reducing costs. Two measures of economy have become available in Boston within the last few months. One of these is economy in the use of valuable land through increased permissible height of buildings; the other is increased allowable stresses in structural steel. A brief study of the effects of these changes is presented in the belief that it will be of interest not only to architects practicing in Boston, but also, in anticipation of similar changes elsewhere, to a wider field.

The Massachusetts Legislature (Acts of 1923, Chap. 462, Sec. 11) increased the height permitted for buildings within certain districts in Boston from 125 to 155 feet. In the design of new structures no difficulty will be experienced in providing columns and foundations for buildings of any desired height within the legal limits. The question will arise, however, as to the practicability of extending the height of existing buildings. The factors bearing on this question are allowable stresses in materials and required live load capacities.

Existing buildings affected by the new law are usually of steel frame, and office buildings predominate. The legislature, which writes Boston's building code, has not recently increased permissible stresses in structural steel, and the building commissioner has no authority to permit higher stresses than are provided in the law. The Board of Appeal has such authority, "in specific cases which appear to them not to have been contemplated by this act although covered by it, or in cases where manifest injustice is done,—” The Board of Appeal has recently approved, and, the writer is informed, may be relied upon in each case to approve stresses in structural steel 12½ per cent in excess of those allowed by the building law, provided the rolling mill furnishes an affidavit that the steel was rolled for the building in question and was made by the open-hearth process; together with a sworn analysis that shows the steel to have a phosphorus content not greater than that allowed by the standard specifications of the American Society for Testing Materials, for structural steel for bridges. It may be possible to obtain the necessary affidavits in the case of an existing building, and the authorities might be satisfied with a chemical analysis of steel cut from the framing, but the writer has had no assurance of this. And even though the columns might safely be loaded more heavily, the board would need to be satisfied that the foundations were sufficient for the stories to be added. The allowed

increase in steel stress is not, therefore, enough by itself, to make possible increasing the height of existing buildings.

In the case of office buildings erected before 1918, however, the other factor has an important effect in favor of extension. A number of changes affecting floor loads were enacted by the legislature in that year (Chap. 179). These include reduction in the live load required in office buildings from 100 pounds per square foot, which obtained as far back as 1895, to 75 pounds per square foot. At the same time the allowed reductions in live loads for columns, walls, foundations, etc., carrying two or more floors were materially increased. This table shows the amount of the reductions allowed prior to 1918 and since the change:

Carrying	1907 to 1918	Since 1918
2 floors	15 per cent.	25 per cent.
3 " "	20 " "	40 " "
4 " "	25 " "	50 " "
5 " "	30 " "	55 " "
6 " "	35 " "	60 " "
7 " "	40 " "	60 " "
8 " "	45 " "	60 " "
9 " or more	50 " "	60 " "

Another change in the law was in the formula for allowable unit stress in steel columns, which prior to 1918 was $\frac{16000}{L^2}$ and thereafter

$$1 + \frac{L^2}{20000r^2}$$

$\frac{L}{20,000-100\frac{L}{r}}$ (Max. 12,000), where L is length of column and r is radius of gyration, both in inches.

For a value of $\frac{L}{r}$ equal to 80 the stresses derived from both formulæ are nearly the same. As the slenderness increases, the new law requires lower stresses than the old, with increasing difference. The columns in the lower stories of the building,

heavily loaded, are likely to have a low value of $\frac{L}{r}$, and the change in column formula will probably not seriously affect the results. It may, therefore, be found that office buildings erected before 1918 have enough strength in foundations and in columns (except in upper stories) to sustain an increase in height.

The writer has worked out an assumed case numerically and presents these results:

Bay: 14x20. Floor area 280 sq. ft.
 Dead loads: Roof 70 lbs. per sq. ft.
 Floors 100 lbs. per sq. ft.
 Column 2,400 to 6,000 lbs. per sq. ft.
 Live loads: Roof 40 lbs. per sq. ft.
 Floors, prior to 1918, 100 lbs. per sq. ft. in upper stories.
 125 lbs. per sq. ft. in first story.
 In 1923, 75 lbs. per sq. ft. in upper stories.
 125 lbs. per sq. ft. in first story.

Table of Total Loads (1,000 lb. units) in Columns

Column under roof	11 Stories before 1918 (33.2)	12 Stories 1923 (33.2)	13 Stories 1923
13th floor	..	85.2	85.2
12th "	..	124.0	124.0
11th "	92.2	124.0	160.5
10th "	141.0	160.5	195.5
9th "	192.0	195.5	233.5
8th "	240.5	233.5	269.0
7th "	287.0	269.0	310.5
6th "	330.5	310.5	352.0
5th "	371.0	352.0	393.0
4th "	410.0	393.0	435.5
3rd "	446.5	435.5	478.0
2nd "	494.5	478.0	520.0
1st "	546.0	526.0	568.0

From this it would appear that one story could be added to the 11-story office building without strengthening the interior columns below the eighth floor, or strengthening the foundations. The addition of two stories, with the data assumed, increases the loads in all the columns and in the foundations. The increase below the seventh floor is less than 8 per cent. Above the seventh floor the increase is greater than 12½ per cent. If the required assurance is forthcoming that the steel has the necessary high quality, and if the foundations are found sufficient for their 4 per cent increase in load, the board should be willing to approve the addition of two stories without strengthening the interior columns below the seventh floor. Ingenuity in trimming the dead weight of the added floors and roof would doubtless result in a better comparison of figures than that presented. The prospect of adding three stories to an office building is not good, unless, of course, it was originally designed for more stories.

Conditions are more favorable for building additional stories if the dead weight of floors is less than that assumed. On the other hand, they are less favorable in the case of exterior columns and those carrying walls other than temporary partitions. Cognizance would have to be taken in each case of the change in column formula, which might affect the results.

The case of reinforced concrete buildings is different. Very few, if any, reinforced concrete buildings were erected to the height limit before 1918. Increase in their height is not affected by the recent change in the height limit and is not, therefore, a new problem. Since 1918 a number of buildings have been erected to the limit of height as it then existed. Although some are now used, at least in part, for office purposes, many were designed for loft buildings to carry factory or warehouse loads, and, insofar as warehouse loading prevailed, the live loads were not reduced in columns and foundations, as is permitted in office buildings. In 1918 the sections of the building law covering the design of reinforced concrete were entirely rewritten, and the unit stresses materially increased. The 1918 law also permits 25 per cent increase of stress in concrete more than a year old.

The greater weight of reinforced concrete con-

struction, as compared with steel frame, is somewhat unfavorable to adding stories, as was pointed out in the analysis of the steel-framed office building. On the other hand, the difference between interior and exterior columns is less. Considering, therefore, that the added stories may be made as light as possible, and that the circumstances mentioned as favoring the possibility of increased height have great influence in the results, the writer is of the opinion that two or three stories could probably be added, in converting a concrete building to office purposes, with very little alteration of the existing structure. Strengthening should be less expensive with reinforced concrete than with steel.

This actual case of a reinforced concrete building 11 stories high, erected in 1920 for loft purposes, in Boston's wholesale leather district, although somewhat special, illustrates the possibilities of increasing the height of such buildings:

Typical Interior Column; Floor Area: 462 sq. ft.

Dead Loads: Roof	67,900 lbs.	
Floor	65,500 lbs.	
Live Loads: Roof	40 lbs. per sq. ft.	18,500 lbs.
Floor	250 lbs. per sq. ft.	115,500 lbs.
Live Loads were reduced to 50 per cent.		

Table of Column Loads—1,000 lb. units

Column under roof	Original design load	Present column capacity	Office building loads
14th floor	55
13th "	140
12th "	86	166	204
11th "	268	396	289
10th "	390	504	359
9th "	523	661	432
8th "	648	543*	503
7th "	761	658*	582
6th "	860	770*	662
			742

It is unnecessary to carry the table further down through the building, as the columns get stronger more rapidly than the loads increase. In this example, only the eleventh story columns need to be strengthened.

In conclusion, it would seem that steel-framed office buildings erected prior to 1918 can probably be increased in height one story if interior columns are strengthened in the upper two or three existing stories and exterior columns in a larger number of stories; that two stories can be added by strengthening interior columns in the upper five stories if the information as to steel quality required by the Board of Appeal is available and if foundations are good for a slightly increased load. The exterior columns, however, might require radical treatment.

Reinforced concrete buildings are more favorably placed than steel. While no sweeping promises can be made, many of them can probably be increased to the new height limit with comparatively little expense in strengthening the existing structures.

* The column below the eighth floor has a structural core with cap above the eighth floor level, which carries the ninth floor and above, but not the eighth. The load of the eighth floor is sustained by the concrete about the column to the level of the seventh floor where it is transmitted to the steel. Similarly in columns below. The tabular figures give the capacity of the steel core.

Plate Description

THIRD CHURCH OF CHRIST, SCIENTIST, 63d Street and Park Avenue, New York. Plates 17-21.—In designing and planning this important place of worship for the Christian Science body it was desired to give the building a character which would show it at a glance to be unmistakably a structure devoted to the service of religion, and not a bank; at the same time it was not desired that the structure should present what would generally be considered an ecclesiastical appearance, and this latter consideration rendered undesirable the use of the architectural types which are usually identified with religious buildings. The structure is therefore a highly dignified meeting house, the chief desideratum being a very carefully planned auditorium which must necessarily possess unusual acoustic properties since during certain of the services the worshipers speak from their seats, and it is desirable that the speakers be heard throughout the auditorium without being required to raise their voices to the pitch generally adopted by public speakers.

For the exterior of this structure the architects, Delano & Aldrich, have used brick and limestone, the roof being of slate and the dome of the cupola gilded. The deck upon which the dome rests is largely of glass, since the light is necessary for the interior. Within, the building is finished in light colors, the walls being painted cream color and the coffers of the acoustically treated dome covered with a blue fabric. The interior woodwork is painted white, with mahogany rails for the pews. Floors are covered with a fabricated material in a tile pattern of blue and gray. The inscriptions in the panels above and at the sides of the reader's desk are painted in gold upon the wall. In the windows use has been made of a slightly irregular, amber-tinted glass, while that in the ceiling is slightly clouded. Much of the interest of the auditorium is due to the lighting fixtures which were designed by the architects. The large candelabrum which hangs at the center, and also the side lights fixed to the walls, are of silvered metal with trimmings of crystal.

HOUSE OF HUNTER PERRY, ESQ., Atlanta. Plates 22-25.—The exterior of this house recalls the homes of the earlier half of the nineteenth century, when the use of classic forms in domestic architecture was widely popular in America, and nowhere more so than in the South. The architectural type adapts itself well to verandas and porticoes which afford shade, and it admits of fairly high ceilings, which are likewise welcome in a warm climate. The architects are Hentz, Reid & Adler.

With its clapboarded walls painted white, its blinds green, its whitewashed fence, its shrubbery, and particularly its portico with four columns with Ionic capitals, this house is essentially Southern.

Within, the classical spirit prevails, but the rooms possess a charmingly homelike and informal character. The trim is painted white. In several of the rooms use has been made of carefully chosen wall paper, while in the living room the walls have been simply paneled and then painted.

THE GEORGE MARSTON WHITIN GYMNASIUM, Whitinsville, Mass. Plates 29, 30.—This structure has been planned to serve rather more than the usual functions of a gymnasium, for it contains a number of details which are generally found only in well-equipped community buildings. The structure itself has been designed by the architects, J. D. Leland & Company, in the late Georgian style.

Every possible adjunct which could add to the comfort and completeness of a gymnasium has been included. The large entrance hall has been planned to serve also as a lounge, and in addition to the desk it includes many small tables for writing and chairs and settees arranged in groups. There is also a library, and nearby are a billiard room and a room for games. The gymnasium proper has been planned with a small stage at one end, while at the opposite end is a booth for motion picture apparatus. A balcony is placed around the gymnasium, arranged with seats for spectators of athletics or motion pictures. As part of the gymnasium are the office of the physical director and his room for physical examinations; there is also a room for special forms of exercise, and in different parts of the building have been arranged the rooms which contain the lockers for men and the lockers and dressing rooms for women, complete with dressing tables and hair-dryers. The room which contains the swimming pool, like the gymnasium, is provided with a balcony, and in connection with the pool there are showers for men and women. A small laundry is also provided. The planning of the building is such that the swimming pool and gymnasium may be reached through an entrance of their own, which makes it unnecessary to use the main entrance.

THE CONFEDERATE MEMORIAL INSTITUTE, Richmond. Plates 31, 32.—This dignified and beautiful building is intended to be "a repository and exhibition place for relics, paintings and sculpture, and to serve as the final place of custody for collections of Confederate relics and data and to serve as to both exterior and interior as a memorial building for the placing of commemorative tablets and statues." The exterior of the structure is faced with Indiana limestone, the large blocks below the entablature being intended for future bas-reliefs. The walls of the lecture room have been embellished with mural paintings of the Civil War by Charles Hoffbauer.

To the original structure, of which Bissell & Sinkler are the architects, an additional museum room has been added by Baskerville & Lambert.

EDITORIAL COMMENT

BUSINESS AND THE ARCHITECT

EVERY architect will benefit directly by a careful reading of the article by Howell Taylor presented in the Business and Finance Section of this issue of *THE FORUM*. This article presents an economic view of the practice of architecture, and frankly takes issue with a destructive attitude which Mr. Taylor aptly terms "group provincialism" and which exists among a comparatively small group of architects who like to think of themselves as conservatives, whose duty in life is primarily to save the profession from commercialism.

To epitomize this state of mind it is interesting to place before architects generally several statements which have recently emanated from this group, and which are described more fully in Mr. Taylor's article. A quotation from the first of these statements refers to a diagrammatic organization chart recently published in *THE FORUM*. The critic says: "All very businesslike and efficient, no doubt. Commercial, yes, but this is a commercial age. At least, so some blatantly insist and many accept. Personally we don't think it half as commercial as it seems to be. We believe that there is a general appreciation that architecture is one of the fine arts and not a business, and we believe that that appreciation is growing, and we believe that in course of time there will be a demand that the architect become an architect in fact instead of in name, and that he do his work himself, and that such things as chief designers and office managers and liaison assistants will have no more place in an architect's office than they have in a sculptor's or artist's studio. If an architect can't do his own designing and his own thinking, he should give up all pretense of being a member of a profession and go frankly into business where he belongs."

The second critic of modern thinking in architecture says: "Utilitarian ends are good in their place, but they must not in building be confused with the ends of architecture. In purely utilitarian building the idea of what we call practical utility governs. In architecture all utilities are controlled by the sense of beauty, as the architect conceives beauty."

Here we have a clear expression from this "small group of earnest thinkers" which with a shrugging of artistic shoulders casts off a public trust placed upon the profession by economic conditions.

The vital question involved in all this discussion would seem to be the ultimate future of the architect. Is he to be a leader in the construction industry? Is he to be an employer, or one who is employed? If architects will not accept the economic responsibilities accorded to the profession by the amazing expansion of the business structure of this

country, *others will accept this responsibility* and will supply a complete service in building construction which meets the modern needs of the public and employs the architect only as a hired designer.

Speaking in terms of a public trust, let us define this trust with exactness. In 1923 over \$5,000,000,000 was invested in new building construction in the United States. Of this amount at least \$3,000,000,000 was directly entrusted to the architectural profession to be wisely spent on owners' accounts.

Consider the actual position of the architectural profession, entrusted with two great responsibilities, the first by inheritance, being the preservation of æsthetic ideals in the designing of buildings and in the rendering of true service to the owner, and the second, through business evolution involving direct responsibility in the actual expenditure of vast sums of public money with an equal burden of responsibility. Who can say that either of these trusts can be administered alone today? Whoever says this tears architecture from its strengthening position in our economic structure or debases this heritage of æsthetic ideals.

All of us, every *architect* in America, have respect for the traditions of the profession, for the ideals of professional service and for the uplifting contribution to human advancement as expressed in the design of buildings which house our social and commercial activities. At the same time common sense indicates the fact that if the expenditure of billions of dollars is to be entrusted annually to members of the architectural profession, then it is imperative that this trust be wisely administered in a sound, businesslike manner; otherwise the responsibility will not long remain with us, and the architect may find himself working for a general contractor or for some new type of service organization, which, decrying the business judgment of the architect, considers itself as giving a protective service from the owner's viewpoint. Already a few such organizations are in embryonic existence, and the growth of this phase of building service is definite and in proportion to the economic failures chargeable to the architect.

Economic history has shown that no profession and no industry can stand alone without progress and without adjustment to changing conditions as the years bring economic progress. How can the profession of architecture be an exception? Why should it be an exception?

This dangerous and careless attitude of destructive criticism as exemplified in Mr. Taylor's article by the term "group provincialism" generates a slow poison which deadens the reaction of the profession, tending toward a fatal inertness, and fails utterly to realize the exact truth which lies in the opinion of the American Institute of Architects, that business is at least an important servant of architecture.

SERVICE SECTION of THE ARCHITECTURAL FORUM

Information on economic aspects of construction and direct service for architects on subjects allied to building, through members of THE FORUM Consultation Committee

The Building Situation

THE chart below is now completed for the year 1923 and provides an interesting opportunity for studying the trends of last year and predictions for 1924. Analyzing this chart line by line we find that building costs are trending slightly upward in December, as a result of the sudden reaction in contracts let and plans filed in October and November. It is apparent that there will be very little, if any, decrease in the cost of building indicated in the first six months of 1924.

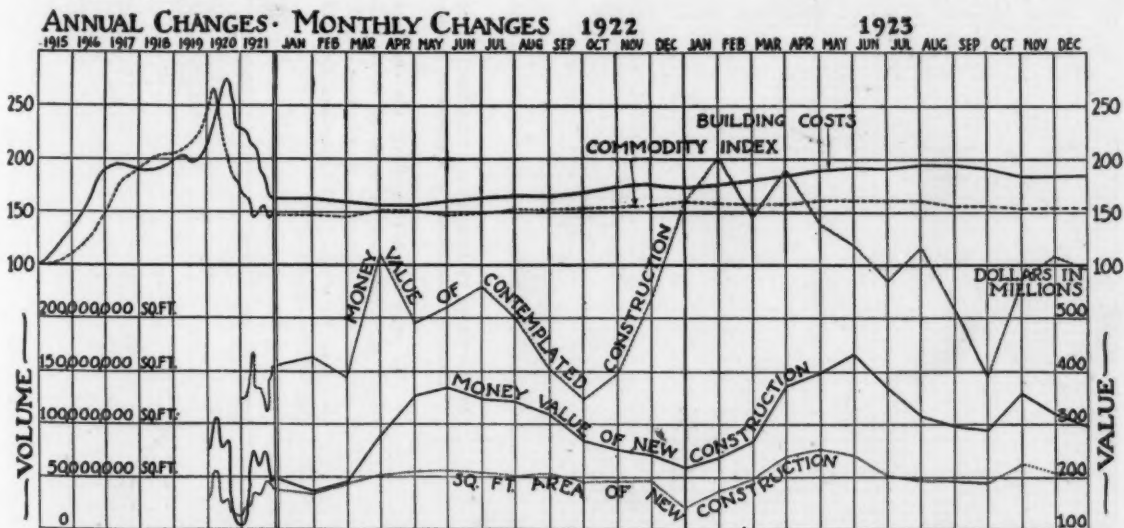
The general commodity index is running along an approximate level, which indicates that the cost of living is fairly well stabilized for the time being. The line which indicates the money value of contemplated construction is established on a basis of the value of plans filed throughout the country. This line has shown a marked increase in the filing of plans during October, November and December, a reaction coming somewhat earlier than heretofore.

On the next page will be found a new feature of the Service Section, which is a continuous analysis

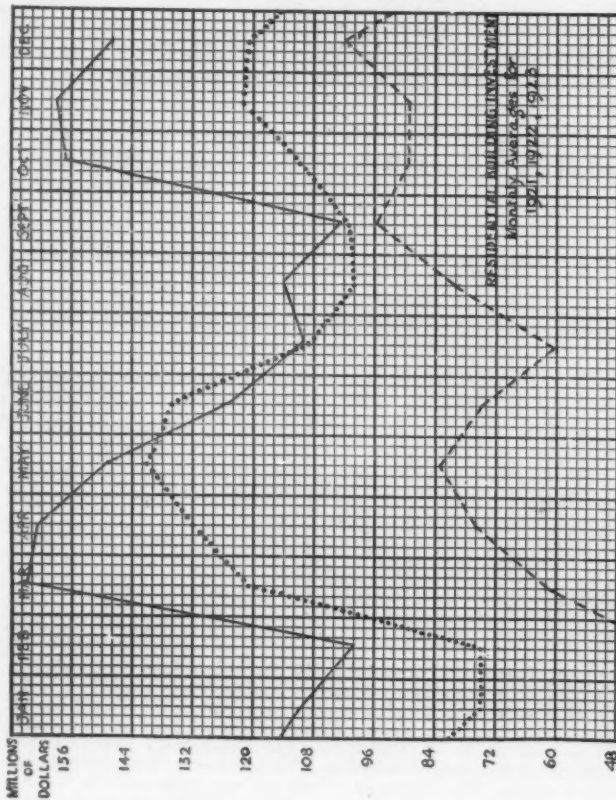
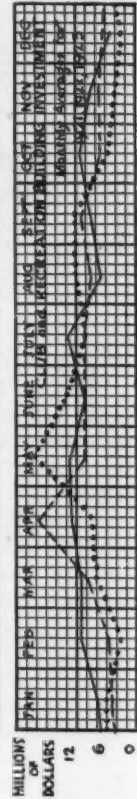
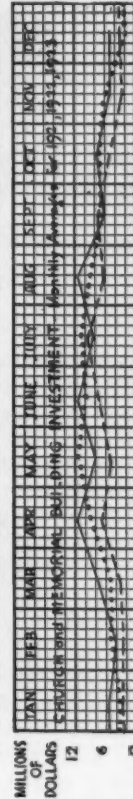
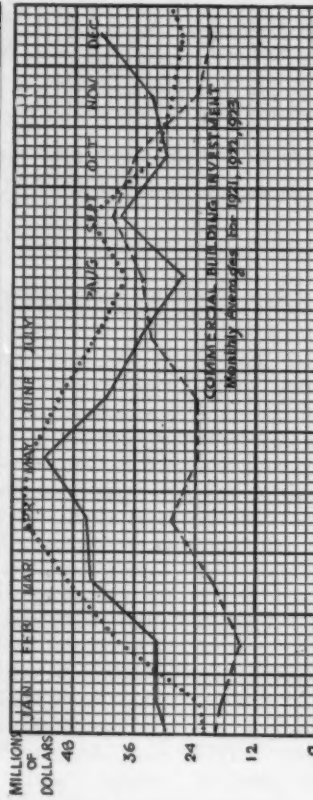
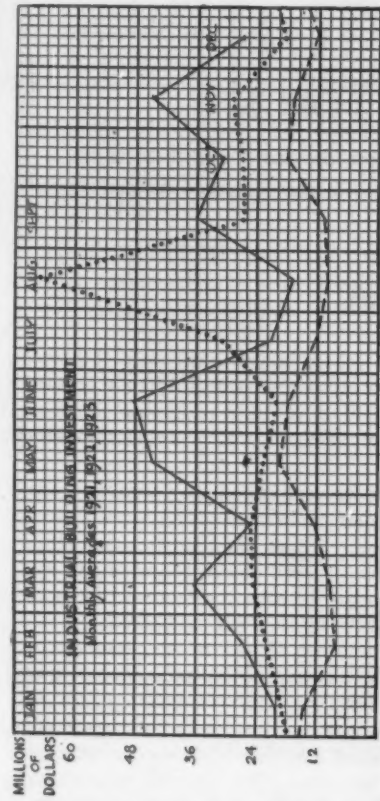
of the contracts let in seven important building types. A study of these charts indicates an unusual increase in the volume of new residential building in October and November, with a seasonal falling off in December.

School building has continued to increase in volume since September of 1923, showing with December a monthly total higher than any during 1923 except April. This is an unusual condition, as will be realized by comparing with the lines on the same chart indicating activity in 1921 and 1922.

Industrial construction shows an unexpected increase in November, almost equal to May and June, which were the high months of the year. Commercial building investment has been strengthening since August, with December showing an unusual volume for that month. The other three building types indicated show no change from the usual condition at this time of the year, and this fact can be noted by the comparative paralleling of the lines for each of the three years covered in the analysis.

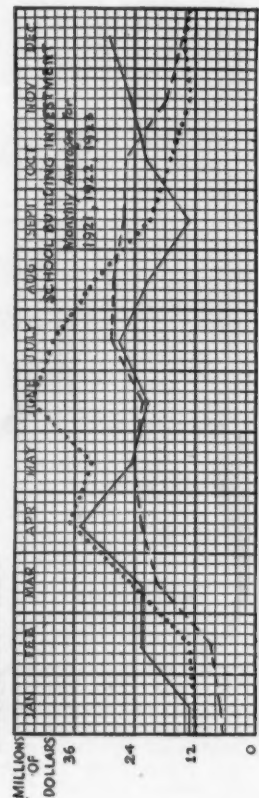


THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs*. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index*. Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction*. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Co., and *Engineering News-Record*. (4) *Money Value of New Construction*. Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) *Square Foot Area of New Construction*. The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represent a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.



INVESTMENT IN NEW BUILDINGS SINCE JANUARY, 1921
(Monthly Comparisons in 7 Important Building Types)

On this page appears regularly the continuing monthly record of investment in each of these building types. Years are superimposed so that instant monthly comparisons may be made. 1921—broken line; 1922—dotted line; 1923—solid line.



THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

THE editors of THE ARCHITECTURAL FORUM have been fortunate in obtaining the co-operation of the following recognized experts who constitute THE FORUM Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries.

The basis on which this Committee has been organized is:

- (a) That each committee member shall be a representative leader in his line;
- (b) That no committee member has affiliations with any manufacturer;
- (c) That no committee member will be called upon for detailed service excepting by special arrangement;
- (d) That a special editorial article on a subject represented under each of the headings below shall be prepared during the year by the committee member.

SUBJECTS AND COMMITTEE PERSONNEL

HOTEL DESIGN AND EQUIPMENT

DANIEL P. RITCHEY

Known in the hotel field as the "hotel doctor," Mr. Ritchey, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING

CHARLES A. FULLER

Consulting Heating and Ventilating Engineer

Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office buildings, institutions and industrial; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE

WILLIAM L. GOODWIN

Assistant to the president and in charge of activities of the Society for Electrical Development

This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING

S. J. WILLIAMS

Secretary and Chief Engineer, National Safety Council, Chicago

Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FARM SCIENCE

FREDERICK WALTER IVES, B.S., M.E.

Professor and head of Department of Agricultural Engineering, Ohio State University. Consulting Agricultural Engineer, Columbus, Ohio.

Specialist in land drainage, soil improvement, surveys, farm arrangement for economical production, purchase of equipment and economical layout of farm buildings with special reference to interior arrangement.

FINANCE

WALTER STABLER

Comptroller, Metropolitan Life Insurance Co.

The largest institution in the United States making loans for building construction. Mr. Stabler's knowledge of building investments covers the country and is widely recognized.

REAL ESTATE

C. STANLEY TAYLOR

Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of THE ARCHITECTURAL FORUM.

FIRE PROTECTION ENGINEERING

J. D. HUNTER

Chief Engineer, Marsh & McLennan, Insurance Brokers New York

Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT

J. CLYDESDALE CUSHMAN

President, Cushman & Wakefield, Inc., Real Estate. New York

Mr. Cushman's firm has participated largely in the promotion and operation of many large New York buildings. His specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION

NILS T. SELLMAN

Service Engineer, American Gas Association

A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

Address inquiries to committee members, care THE ARCHITECTURAL FORUM, 383 Madison Avenue, New York

THE FORUM DIGEST

A SURVEY OF IMPORTANT CURRENT ARTICLES ON BUILDING ECONOMICS AND BUSINESS CONDITIONS AFFECTING CONSTRUCTION

The Editors of this Department select from a wide range of publications matter of definite interest to Architects which would otherwise be available only through laborious effort

BUILDING DURING WINTER MONTHS

Address Delivered by Alfred S. Alschuler, Architect, Chicago, at Fifth Annual Meeting of the Associated General Contractors of America, La Salle Hotel, Chicago Jan. 23, 1924.

BUILDINGS are constructed not only of brick, steel and wood, but with every bit of mortar there is mixed a certain amount of sentiment; a dream long visioned to be materialized; a vision long anticipated fully realized. For it is this human hope and ambition to own a home to shelter one's family, to provide meeting places where human beings may gather for mental or spiritual improvement, or to house growing industries in which all one's energies are centered—it is for the realization of such hopes and dreams that buildings are transformed from visions into substance.

All this may at first glance seem to be entirely foreign to the subject of this paper, but upon further thought you will realize that this hope or sentiment, which plays such an important part in human affairs, is, after all, affected and influenced, not only by material considerations, but largely by what we are pleased to call "psychological conditions." The man who has been saving for years to build a home for his family or for his industry usually puts off the final decision to act until his mind is made up,—or, to put it in other words, until the mood strikes him. It is hardly necessary to say that such moods in human beings follow closely other natural phenomena, and that spring is the most likely and winter the least natural time for such moods to be brought about and decisions reached. There is daily evidence of such moods, easily corroborated by all salesmen who prefer to solicit a customer in sunshiny weather and would save their efforts on dark or gloomy days. So it is this psychological aspect which must be considered in trying to overcome the prejudice against and inertia toward winter operation.

I have made an analysis of various charts showing monthly operation over a period of years, and have assembled this information in a new

chart. This chart indicates the average monthly operation over a period of years in the larger cities of the United States which are influenced by climatic conditions. This chart represents a very large percentage of the work done in the United States, and clearly indicates a season of tremendous activity from March 1 to October 1, a gradual decline for October and November, and a sharp decline for December, January and February. It is unnecessary to point out the tremendous advantage arising therefrom and affecting both capital and labor where such seasonal operation exists and the desirability of overcoming this as far as possible. This condition varies considerably according to climate, but for present purposes I have assumed a belt or zone including Chicago and New York in which conditions affect a very large proportion of the building operations of this country which are carried on.

To go into this subject extensively would require a careful analysis of each group or class of buildings, as each group is subject to slightly different influences. I will, however, consider them briefly:

Office building projects in some cities are influenced largely by the fact that they must be ready for May 1 renting or else suffer vacancies for a considerable period. To meet this condition usually compels the starting of large operations about May 1, carrying on at a top speed through the summer and fall to enclose the building at the earliest possible date, and then the carrying on of all interior work during the winter months. This class of building provides work substantially over the entire year. There is not much latitude permitted in the starting of such operations unless other renting conditions prevail. Even under other rental conditions this class provides practically an all-year occupation, as it takes substantially a year to complete such structures if they are of any considerable size.

Places of amusement, which furnish much work, are usually desired for completion in time for fall opening. These, therefore, depending on their sizes, must start either in early spring or the preceding fall and carry on right through the winter, so that this class as well as office buildings should normally provide a considerable amount of winter work.

Public works and utilities furnish

a class of work which should not be influenced by seasonal activities and which should be used as a reservoir to draw upon both in times of building depression, and, if required during boom periods, should be carried on during the least busy months. This would surely benefit all parties concerned. The public owning the buildings or paying revenue for their support would profit by reduced building cost. Contractors and workmen would gain by being occupied during the winter months, and the building public would further profit by having that much less work thrown into the summer months.

Apartment houses are to a large extent built by a class known as "speculative builders" on small margins of capital and must be turned out for completion just prior to the renting season. If May 1 is the most popular renting date, I believe starting in fall and going on through the winter would be both possible and highly profitable. Where no fixed rental date exists, a campaign of education for winter building might be effective.

Residences are very largely influenced by the mood of the builder, and I believe something could be done here to offset the popular prejudice against winter building.

I have left until last the group of industrial buildings, with which I happen to be most familiar. In the past, this was subject to the same influences as already mentioned, but within the past five years, I have noticed a considerable change of attitude. With the rapid expansion of business certain owners have decided to expand to meet the pressure regardless of the time of year. Others having seasonal businesses of their own have been compelled to plan to move according to their business needs. Still others, planning new buildings fitted to their requirements, in order to reduce their operating costs, likewise seek in the face of high building costs to take advantage of every possible opportunity to keep down their investments. These classes I believe are rapidly growing, and the result, in my office at least, has been a steady increase of winter work. It is here that a large opportunity is afforded for education, showing the advantages of winter operations.

To accomplish this, it is first necessary to overcome existing prejudices.

These are mainly the established fear of damage, particularly in reinforced concrete buildings, resulting from cold, and the thought of decreased labor efficiency or increased cost resulting therefrom. That there is some ground for this assumption is understood. The developments and improvements in method of construction in recent years are not generally understood. For example, the class of reinforced concrete buildings are probably more affected by cold than any other kind of construction, and yet they are being carried on more and more and without harm.

You gentlemen, as contractors, are familiar with the numerous methods by which materials are heated and by which the form work and reinforcing steel is cleared of ice and snow during the winter months, and it is not my intention to go into the numerous details of these provisions. One feature, however, which has been used on several of our concrete buildings of especial interest is the use of the form work for the floor above that which is being poured as a protection over the concrete. By standing the 4 x 4 uprights on wedge-shaped concrete blocks which rest on the form of the slab to be poured, the forming for the next floor above can be practically completed. In case of heavy snow or rain, tarpaulins laid over this form work give a watertight protection, as well as enclosing the space for temporary heating. By these methods, and including the use of chemicals under certain conditions, building operations are facilitated so that, except under most severe conditions, work can be carried on without interruption. Although it is necessary to prepare and provide all necessary precautions, it frequently is the case that winter weather turns out to be mild and no difficulties whatever are encountered. In this case, provided the right kind of contract is entered into, both owners and contractors will gain.

During the last winter, one heavy reinforced concrete structure 10 stories in height, containing 16,000 square feet on each floor, through the efforts of an energetic contractor, was carried up from the first floor to the roof in less than 70 days, or 60 actual working days. Another concrete building, the previous winter, containing 6,000 square feet per floor was carried up 12 floors in 100 days. This included bad weather conditions, holidays and some days when work was held back for the lower floors to set; some floors were poured in five working days from the time of completing the previous floors. My experience leads me to believe that it is largely a matter of contractors. Some overcome all difficulties, whereas others sink under them.

The omission of the top finish, and placing this after the building is enclosed and heated, greatly expedites work. When this is done, great care must be used to see that the finish

adheres thoroughly. This requires considerable skill to absolutely assure adhesion, as frequently the variation of the amount of water contained and the exact time of evaporation play an important part.

It is hardly necessary to mention here the various methods which can be employed to safeguard and amply protect foundations and masonry, and it might be profitable to conduct a campaign of education along these lines, so that the public will not look with fear upon winter construction. After a building is enclosed and protected from the elements, the setting of temporary radiators after the installation of the heating system of course expedites the work.

The inducement for the prospective builder, as we all know, lies in the fact that there is usually a better supply of labor during the winter months. This has been especially true during the last four years, when the large flood of building operations during the busiest period has created such a shortage of labor and material as to bring about an unhealthy condition for both contractor and owner. The contractor who has figured on the established wage scale has too often, to his sorrow, found his men soldiering on the job and himself helpless in the situation. A command would only result in losing his help altogether and frequently compel him, in order to complete his work, to raise the wages or pay overtime as an inducement to obtain workers from other contractors who in turn would suffer the same experience and would finally be compelled to bid against the first contractor for the return of their former mechanics. After a few experiences of this nature, the contractor would naturally endeavor to protect himself in future work, and the succeeding owner would be compelled to pay the penalty of this competition.

A better distribution of work throughout the year would tend to decrease this tendency and likewise costs thereby. Another evil which might be eliminated arises from the fact that unemployment drives workers into other fields or climates, and many of them do not return, thereby creating a still further economic loss. It is hardly necessary to say here that the continuous overhead of a contractor's organization is a considerable burden to him during dull seasons and is a corresponding inducement for him to reduce his margin of profit for continuous employment, which will result in a decided advantage to the owner who can be educated to the advantages of building during the winter period.

I believe a general publicity campaign directed toward the architect would be beneficial. In order to obtain results, the cooperation of the architect or engineer is absolutely vital. If winter work is under consideration, the conditions to be encountered should be clearly anticipated. I believe it would be

advisable, where time is of importance, to say in advance that the contract should be based on actual working days. Otherwise the contractor will, or rather should, protect himself by ample allowance for bad weather. Thus the cost is increased, and if moderate weather prevails, the owner is likely to be the loser. It is also necessary to definitely consider work as a winter job in the writing of specifications. In other words, if the contractor's attention is called to the fact that he must figure on thawing out frozen ground, on providing a certain amount of temporary heat, on temporary enclosures at door and window openings, and in general on carrying on his work irrespective of weather conditions, he will then allow enough in his original bid to cover the cost of such work and will not either slow down or stop work or ask the owner for extras when cold weather sets in. In order to avoid any question at the completion of the work relative to the time element, it is well to specify exactly what weather conditions and temperatures are necessary, so that a "working day" is clearly defined in advance.

A general publicity campaign might be directed toward the public as well as the contractors. A chart showing clearly the fluctuations, as well as a statement showing all the facts clearly and indicating the advantages to be gained, would be valuable and in time should produce results. A thorough study of the situation by committees representing the various industries throughout the sections of the country affected, and the submitting of their report for discussion among the various local organizations should bring a wider range of experience and knowledge of its practical application to the individual contractors. A campaign carrying a popular slogan, obtained possibly by the offering of prizes to the public, would tend to arouse a general interest in the subject.

It should be pointed out clearly that in many cases owners will profit by proceeding with their work regardless of weather conditions, when they can make savings of interest as well as taxes on investments lying idle. It is surely safe to say conservatively that winter construction will cost an owner no more than summer work.

In all of these elements which enter into the general question of improving building conditions, a careful analysis of the situation by both architect and owner, and frequently consultation with an intelligent contractor will produce savings in cost of construction and result in a completed enterprise instead of an abandoned enterprise. This process repeated many times will produce healthier, saner and more satisfactory conditions in the building industry.

(The chart referred to in the third paragraph may be obtained by addressing Ira L. Smith, 1038 Munsey Building, Washington, D. C.)

THE PRESENT SITUATION IN THE BUILDING INDUSTRY

THE annual building survey of the Copper & Brass Research Association for 1923 sets the total expenditure for building in 1923 at \$5,922,900,000. Estimated construction for 1924 totals \$4,835,935,000. The distribution by districts of the 1923 expenditure for building construction is shown on the accompanying map, while the chart shows the trend of building from 1910 to date.

The tremendous acceleration of the rate of expenditure during the two years just past has, the association's survey shows, resulted in a reduction of the war shortage by some \$5,000,000,000, so that the industry is moving rapidly toward normal conditions.

Curve No. 1 indicates the Total Construction Requirement each year. It includes both the Shortage at the End of Each Previous Year (Curve No. 4) and the Normal Yearly Growth (Curve No. 3), and shows the total amount of construction needed to meet all requirements. It will be noted that this curve is plotted to the right of the year line. This has been done on the assumption that the total requirement is not known at the beginning of the year. The winter months are devoted to developing plans, etc., so that the total is not definitely established until about April 1, when work is started. While this is an arbitrary assumption, it is used because it permits a better presentation.

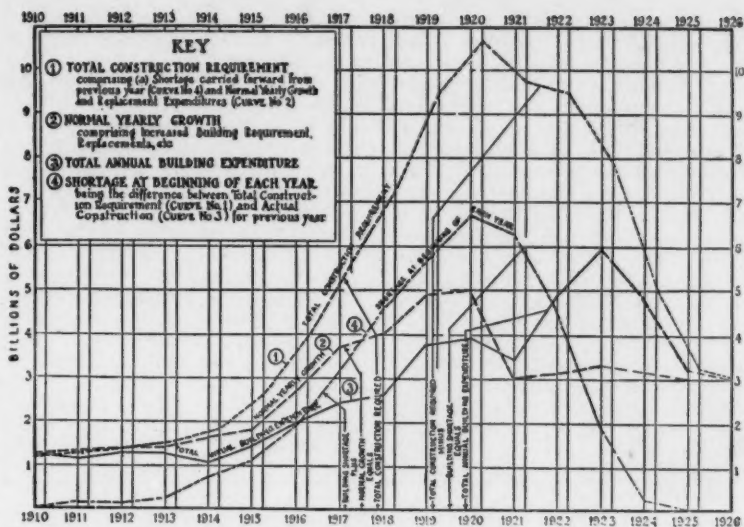
Curve No. 2 shows the Normal Yearly Growth in the building field. The population of the country is increasing at the rate of 4,620 per day. Allowing five persons to a family, 337,240 houses or apartments are required yearly to take care of new inhabitants. Other items which are included are the cost of replacements, alterations, repairs, and new construction necessary to supply the needs of increased population, such as churches, hospitals, schools, stores, theaters, etc.

Curve No. 3 shows the Total Building Expenditure yearly in the United States.

Curve No. 4 indicates the Shortage at the Beginning of Each Year, or the "carry over." This shows the money value of work projected or needed each year but for various reasons not executed.

As far back as 1914 Expenditure fell behind Normal Growth, and a real shortage began to develop. The two curves diverge widely during the war years, with a corresponding increase in the Total Requirements. Not until 1921 do the two curves approach each other. At this time the present boom started, and we see an enormous increase in building culminating in the 1923 peak.

Such an expenditure as \$11,000,000,000 in two years resulted in a decrease in the shortage and a



Trend of Building in the United States, 1910-1923

marked reduction in the total requirements, as may be seen in this tabulation:

April 1, 1921—Total Requirement	\$9,806,135,000
Construction, 1921	3,442,300,000
Shortage Jan. 1, 1922	6,363,835,000
Normal Growth, 1922	3,125,000,000
April 1, 1922—Total Requirement	9,488,835,000
Construction, 1922	4,910,000,000
Shortage Jan. 1, 1923	4,578,835,000
Normal Growth, 1923	3,305,000,000
April 1, 1923—Total Requirement	7,883,835,000
Construction, 1923	5,922,900,000
Shortage Jan. 1, 1924	1,960,935,000
Normal Growth, 1924 (estimated)	3,125,000,000
April 1, 1924—Total Requirement (estimated)	5,085,935,000
Construction, 1924 (estimated 95%)	4,835,935,000
Shortage Jan. 1, 1925 (estimated)	\$250,000,000

From the foregoing it is evident that the peak has been reached and that from now on there will be a gradual decrease in volume until a normal market of approximately \$3,000,000,000 is reached. The curves clearly indicate that the tremendous war shortage of over \$10,600,000,000 of 1920 has been overcome and that 1924 sees a potential market of slightly more than \$5,000,000,000. A conservative estimate of the total volume of construction for 1924 is \$4,835,935,000, or approximately 95 per cent of the total requirement.

The figures given here and the data from which the curves are plotted are obtained from separate analyses of three different sources of information, namely, (1) building permits in various cities throughout the country; (2) reports from Chambers of Commerce in the principal cities and states, and (3) estimates by architects of projects handled by them during the year. With sources so widely divergent considerable variation in estimates was to be expected. The curves represent a determination of these variations and a compilation of

the results of surveys made by different authorities. It is felt that they represent as nearly as possible the present status of the industry and clearly indicate the trend for 1924.

In predicting the volume of business for 1924 no allowance has been made for the many variables outside of the building industry which have a marked effect upon it. The general prosperity of the country is closely reflected in building, and while it is evident that the peak of 1923 will not be reached in 1924, the need is so great that, unless a decided upset in national affairs occurs, the volume for the year will be at least as great as in 1922, itself a record-breaker. The importance of Curve No. 2—Normal Yearly Growth—is evident, for from it are obtained the other curves as is indicated by two simple formulæ on the chart. This curve represents dollars rather than physical volume required, and, as the purchasing power of the dollar is subject to variation, the curve is correspondingly affected. The amount of fluctuation is determined from the Index Numbers of Costs, etc., issued by the Department of Labor. The variation due to these is particularly noticeable in the years 1919-1921, when prices rose sharply and then declined. The gradual increase since 1921 is also indicated.

At the present rate of increase of population, over \$2,250,000,000 goes into new housing. Another \$1,000,000,000 is none too much to take care of replacements, repairs and alterations, and the new construction necessary to supply the increasing needs of the country. Estimates have been prepared showing that for farm buildings alone (stables, sheds, etc.) the expenditure of \$78 per farm would total annually \$500,000,000 for the entire country.

Expenditures for 1923 are divided into these different classifications:



Distribution of Building Industry Throughout the United States

Type of Building	Expended 1923	Per cent
Apartments	\$1,066,122,000	18.0
Business buildings	651,519,000	11.0
Dwellings	710,748,000	12.0
Farm buildings	118,458,000	2.0
Hospitals	325,759,500	5.5
Hotels	562,675,500	9.5
Industrial buildings	651,519,000	11.0
Military and naval buildings	59,229,000	1.0
Public buildings	177,687,000	3.0
Recreational buildings	414,603,000	7.0
Religious buildings	384,988,500	6.5
Schools	799,591,500	13.5
	\$5,922,900,000	

The percentage distribution in dollars, of the building industry throughout the United States, is shown on the outline map. The association has divided the country into 11 districts of generally similar industrial characteristics. Exceptions to this division are of course the Pacific states, Texas, and the large Missouri-Mississippi Valley group, stretching west from Indiana to Nebraska. The percentages shown on the map and in the tabulation below are figured from the populations and gross incomes of the various districts in 1921, the latest available data. New York state (District II) alone has a larger percentage than any of the others. Texas (District X) exceeds North and South Dakota and Minnesota combined (District VII). The Rocky Mountain states (Districts VIII and IX), comprising eight states and the largest area, represent only 2.3 per cent of the total. The Pacific Coast states (District XI) show a surprisingly large percentage, as do the Southern states (District IV).

Here is a tabulation of the districts and the individual totals for 1923:

District	Percentage	Total, 1923
I. New England states	7.4	\$438,294,600
II. New York state and northern New Jersey	23.9	1,415,573,100
III. Southern New Jersey, eastern Pennsylvania, Delaware, Maryland, D. C., Virginia	8.4	497,523,600
IV. North and South Carolina, Georgia, Florida, Alabama,		

Louisiana, Mississippi, Arkansas, Tennessee	10.7	633,750,300
V. Western Pennsylvania, Ohio, West Virginia, Kentucky	13.3	787,745,700
VI. Wisconsin, southern Michigan, Indiana, Illinois, Iowa, Missouri, Nebraska, Kansas, Oklahoma	22.4	1,326,729,600
VII. North and South Dakota, Minnesota, northern Michigan	2.9	171,764,100
VIII. Montana, Idaho, Wyoming	0.7	41,460,300
IX. Nevada, Utah, Colorado, Arizona, New Mexico	1.6	94,766,400
X. Texas	3.1	183,609,900
XI. Washington, Oregon, California	5.6	331,682,400
	100	\$5,922,900,000

DAY LABOR OR CONTRACT?

THESE statements are taken from an address, recently delivered at the annual meeting of Associated General Contractors, by Arthur P. Bent:

"The problem we are to consider is not hypothetical. All over the country today there is a growing tendency among public officials to do public work by day labor. This is not confined to maintenance, or to minor municipal operations, but reaches to single major projects of great importance. River levees built by the federal government; highways built by states; dams and canals built by irrigation districts; asylums and hospitals by counties; schools, sewers and paving by cities—all by day labor. The real causes of this tendency are not easy to determine, but the reasons given by public officials are quite simple and specific. Chiefly they are: First, 'to save the contractor's profit.' Next, to permit of more elasticity in carrying on work—under day labor method the responsibility upon the governing bodies of knowing just what they are going to do and how, does not press heavily. Again, work can be started quicker. But back of these and other reasons

lie basic causes which are not so easy to get at. Sometimes it is a desire for power and the support in authority, which comes from a large body of subservient employees. Sometimes it is just politics of the old sordid variety, less common now but not yet gone from public life.

"In the joint report of the two great California automobile clubs may be found the statement that of 300 highway jobs done by day labor, and amounting to \$7,000,000, the state's accounts showed unit costs on only five jobs. On two of these five, the state first called for bids and rejected them on recommendation of the State Engineer who then undertook the work himself. The record shows these figures:

	Engineer's Estimate	Contractor's Bid	Actual Cost to State
Excavating	\$3.55	\$1.10	\$1.17 per cu. ft.
Concrete	4.50	7.50	10.38 " " " yd.

"In totals this means on the first job a bid of \$117,000, and an actual cost of \$160,000, or a loss to the state of over 37 per cent, and on the second job a bid of \$43,000 and a cost of \$81,000, or a loss to the state of almost 90 per cent.

"With such facts within their knowledge, what shall we think were the reasons that led state officials to continue this method to the extent of \$7,000,000 worth of highways; and were their reasons typical? It is gratifying to add that the present California administration went into office under a pledge to stop this reckless waste and to carry on its public construction under public competition.

"The day labor system is fundamentally unsound. It breeds dangerous politics, encourages inefficiency, lowers construction standards, develops extravagance, decreases production, destroys individuality and lets loose that spirit of disloyalty to duty which notoriously during the war spread like a plague over the whole world. We all need the spur of competition. We all need to feel the pressure of definite responsibility. We all need the rewards of individual initiative and effort. America's splendid and amazing career fairly rests on that foundation. Listen to the words of that discouraged prophet of day labor and communism, Leon Trotsky, as they appeared recently in *The Literary Digest*: 'Our nationalized industries, even those working under exceptionally favorable auspices and well equipped, all are working at a loss. Our administrators and directors are not real masters who attend to every little detail, who watch everything, who save every minute of time and every cent of money, who work day and night caring for the needs of our plants.' The same false theory, upon which day labor rests, has benumbed the great soul of Russia, and not even her vast resources, greater than our own, will restore her."

